Junior Scholastic

Teacher Edition

VOLUME 34 • NUMBER 2
FEBRUARY 10, 1954

Teaching Guides

The Panama Canal (pp. 6, 7)
We Are Zoners (pp. 8, 9)
Old Golden School Days (p. 10)
Workers: Free Men or Slaves? (p. 27)
Young Abe Lincoln (pp. 28, 29)

Concepts Developed in the Canal Zone Unit

The 50-mile-long Panama Canal linking the Atlantic and Pacific Oceans is one of the most important engineering feats in the world. It eliminates the need for ships to sail all around South America.

Construction of the Canal Zone was a tremendous undertaking. In the successful attempt, made by the U. S., medical men had to do their work before engineers could start.

The Canal is so important that the U. S., by treaty, retains permanent control of the area through which it passes.

Suggestions for Using the Theme Article

DEBATE

Aims: 1. To learn how a give-and-take of ideas helps to clarify one's thinking.

2. To practice selecting and organizing material.

3. To get a better understanding of one of the problems our Government must solve.

To the teacher: Each request of President Remón may be debated by a different team, as:

Resolved: That the U. S. Government should pay more rent for the Canal.

That the Government stores should sell goods at the same price the Panamanians do.

That Panama workers should receive the same wages as U. S. workers.

Or, the debate may be on all the requests made by President Remón, as:

Resolved: That the U. S. should agree to all the requests made by the President of Panama.

MAP STUDY

Aims: 1. To show how the Panama Canal benefits the U. S. and the rest of the world.

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2. To note the distance saved by using the Panama Canal.

To the pupils: The U. S. is considering modernizing and enlarging the Canal. During that time it may be necessary to close the Canal to traffic. What routes would ships use in the following instances? Give approximate distances between the places when the alternate route is taken. Use the Scholastic News Map of the World or a globe map.

1. Seattle, Washington, to New York, N. Y.
2. Boston, Mass., to Tokyo, Japan.
3. Paris, France, to Lima, Peru.

Activities Based on the Panama Unit

CONSTRUCTION

On a sand table or a large board make a model of the Canal Zone from clay or a salt and flour mixture. Paint the water areas blue and the land green. Trace the route of the Canal, indicating the locks, railroad tracks and highway.

ORAL ENGLISH

Divide into pairs to take an imaginary trip through the Canal. One will be a pilot like Linda's father, the other the captain of the ship making his first trip through the Canal. Plan a question-and-answer conversation based on what you have learned of the Canal and the countryside and people. Be prepared to present this for your classmates. For example:

CAPTAIN: Where are we now?

PILOT: This is Limon Bay which is about 7 miles long. The first locks, the Gatun Locks, are at the farther end of it.

CAPTAIN: What was that city at the entrance near the breakwater?

PILOT: That was Colón. It was there that we passed from the Caribbean Sea into Limon Bay.

LETTER WRITING

If Linda or Earl choose your letter as one they will answer, it will show you have written about things which interest them.

Reread their letters for clues which indicate what they would like to hear about. Make your letter sound as if you were holding a conversation with them.

COMPARISON

Find a description of the Suez Canal and compare it with the Panama Canal as to size, type, importance. Tell what countries it passes through and what bodies of water it connects.

RESEARCH

Yellow fever and malaria were largely the cause of the French failure to complete the Canal. Search out further

LOOKING AHEAD WITH JUNIOR SCHOLASTIC

Next Issue: February 17

Theme Article: U. N. Specialized Agencies
Way Back When: Mail-order Catalogues
Freedom Answers Communism: Collectivized Farming
Feature: Farmer George

references to the diseases and controls in encyclopedias. In his book, *Microbe Hunters,* Paul de Kruif has an interesting account of how it was fought in Manila.

Old Golden School Days

To the pupils: This week's story shows that many of the things we do in school today are quite similar to those done 50 years ago. As we read, let us note the similarities and differences.

What is "phys. ed." abbreviated from? What differences do you notice in your gym classes of today? Have you ever played clock-walking race?

In some ways there was more danger from fire in schools in those days. Can you name them? What might increase fire danger today?

You can notice a big difference in the way lessons were recited. Do you think that way is better than what we do now? Why?

Less time is spent on penmanship today. Why?

Workers: Free Men or Slaves?

To the teacher: The January 6 issue's "Who Says I Can't Leave Town?" has further bearing on this topic. Ask someone to review the main points.

OUTLINING

To the pupils: The article is in partial outline form, divided into topics. Outline it still further by listing briefly the descriptions of the U. S. and the Communist ways.

Young Abe Lincoln

To the teacher: This play may be used for oral reading with the minimum of dramatization. When parts are assigned, each reader should draw a line out in the margin at the beginning of each of his speeches. Time should be allowed for silent reading to check any unusual words and to get the general sense of the play.

The class may wish to do it again with a different cast. Allow a few minutes' general discussion to comment on the good points achieved by the first group. Suggest these be retained. Then ask for suggestions to improve the next reading.

To the pupils: A custom common in "blab schools" was to recite out loud in chorus. Since the pupils of those days were used to it, they would do it seriously with no thought of humor. The teacher, also, is typical and should not be made a comedy character. Humor is introduced by the contrasting characters and certain speeches in the script.

QUICK QUIZ

Ten Questions for a Five-minute Quiz

1. What country is sending the U. N. a peace bell made of coins? (Japan)
2. What country is Turkey's president visiting? (U. S.)
3. How many dogs are there in the U. S.? (30 million)
4. The Mackinac Bridge will be the world's second-largest suspension bridge. What state is it in? (Michigan)
5. Name the Frenchman who tried, but failed, to build the Panama Canal. (De Lesseps)
6. What insect had to be beaten before the Canal could be built? (Mosquitoes)
7. What is the name for the Canal compartments in which water level is changed to raise or lower a ship? (Locks)
8. A treaty with what country gives our Government control forever over the Canal Zone? (Panama)
9. Ships belonging to the governments of the U. S., Panama, and what other country may use the Canal without paying? (Colombia)
10. The Canal is an important short cut. About how many miles does a ship save by using it? (7,900)

Answers to Quiz-word Puzzle, p. 31

ACROSS: 1-draws; 6-Gridley; 8-or; 9-on; 11-harm; 14-awry; 16-you; 17-the; 18-state; 20-feeding; 22-mi; 23-D. S. C.; 24-of; 26-are; 28-Mar.; 29-eat; 31-oat; 32-ready; 34-and.

DOWN: 1-Dr.; 2-R. I.; 3-A. D.; 4-W. L.; 5-S. E.; 6-gray; 7-yore; 8-oh; 10-N. Y.; 12-rose; 13-muted; 14-attic; 15-when; 19-ads.; 20-fire; 21-goat; 22-ma; 25-Fr.; 27-ear; 28-may; 30-tea;

Answers to Citizenship Quiz, p. 32

1. SCHOOL DAYS (15 points): 1-check; 2-X; 3-X; 4-check; 5-X.
2. PANAMA CANAL FACTS (25 points): 1-h; 2-b; 3-d; 4-a; 5-f.
3. FREE MEN OR SLAVES (20 points): 1-X; 2-F; 3-F; 4-F.
4. THE WEEK'S NEWS (40 points): All answers are b.

Tools for Teachers

Britain, Feb. 24 in *Junior Scholastic*

PAMPHLETS: *Britain Speeds the Plow,* 1949, free; *Face of Britain,* 1948, free; *Scotland Today,* 1953, free; *The British Year,* 1952, free; *Land Maps of Britain,* 1953, free; British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. *Britain,* 1953, free; British Travel Association, 336 Madison Avenue, New York 17, N. Y.

BOOKS: *Land of the English People,* by Alicia Street, $2.50 (Lippincott, 1946). *Story of English Life,* by A. Williams-Ellis, $5.00 (Coward, 1947).

ARTICLES: "Atlantic Report on Britain," *Atlantic Monthly,* Oct., 1953. "Queen's Job, and the Queen," by D. Middleton, *N. Y. Times Magazine,* Nov. 22, 1953.

FILMS: *Roaming Through Britain,* 13 minutes, sale or rent, Films of the Nation, Inc., 62 West 45 Street, New York 36, N. Y. Views of England and Scotland. *Hill Sheep Farm,* 19 minutes, sale or rent, British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. Life on a Scottish farm. *A Day with English Children,* 10 minutes, sale, Coronet Films, Coronet Building, Chicago 1, Ill. Life in Great Britain Today series: *Scottish Miner, British Factory Foreman, British Farmer, Manchester Industrialist, British Mill Owner, English Farm Family*—12 minutes each, sale or rent, McGraw-Hill Book Co., Text-Film Dept., 330 West 42 Street, New York 36, N. Y.

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Junior Scholastic

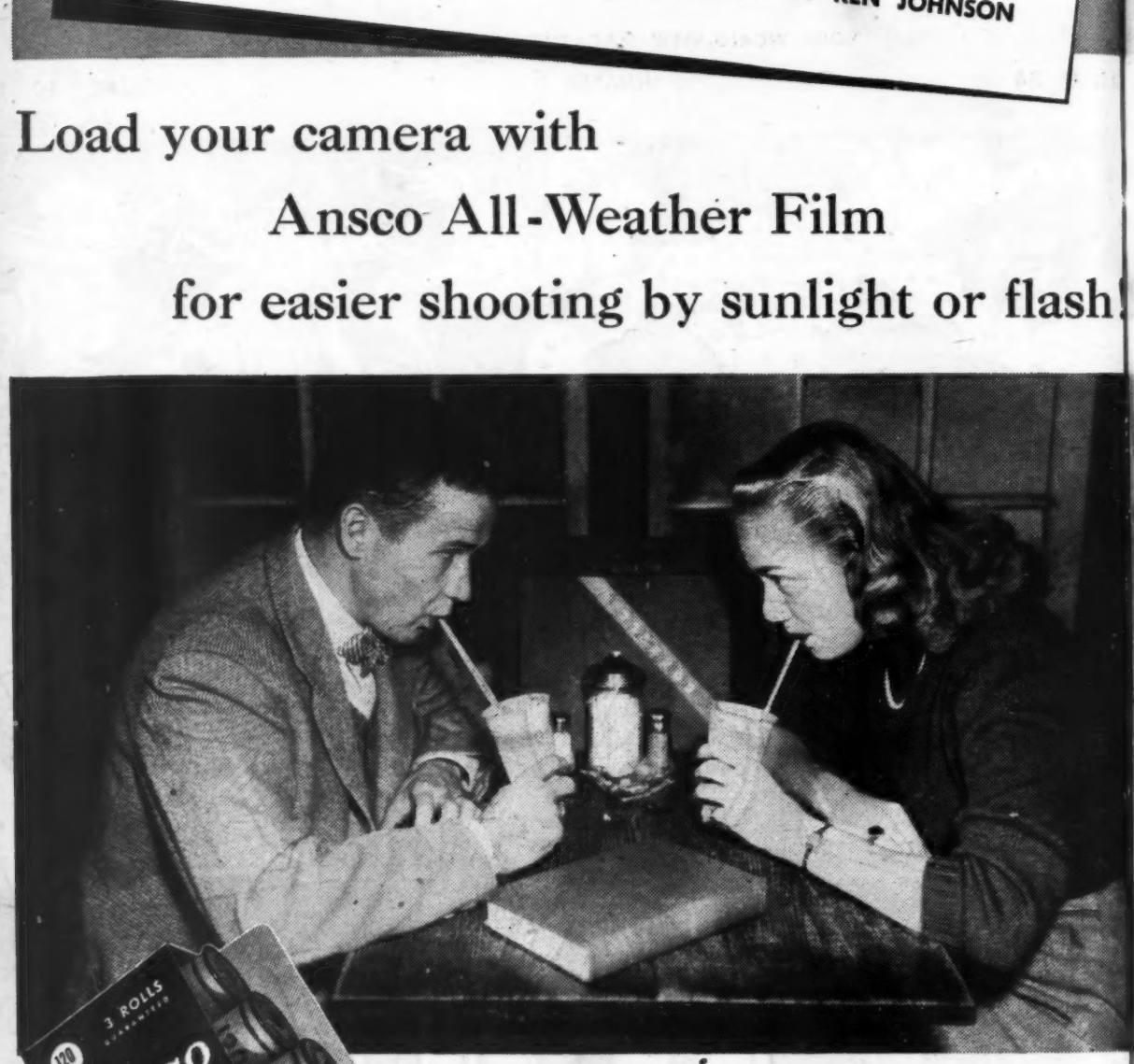
YOUR WORLD-VIEW MAGAZINE FOR SCHOOL AND HOME

LUME 34 • NUMBER 2 • FEBRUARY 10, 1954

Shutterbug's Page

EDITED BY KEN JOHNSON

Load your camera with Ansco All-Weather Film for easier shooting by sunlight or flash!



SAVE 15¢ with the 3-Roll Economy Pak!

People Who *Know* Buy ANSCO

There's no longer any need for regrets about snapshots you can't get because of poor lighting conditions! Casual, life-like pictures like this one can be yours with the simplest flash equipment and a good supply of Ansco All-Weather Film.

You'll be delighted with this easy method for making a *complete* record of your school activities, friends and family. When you use flash you're independent of sunlight and you can catch your subjects in natural poses almost anywhere you find them. There's nothing like a flash camera loaded with All-Weather Film for snapping events and persons the way you want to remember them!

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ANSCO, Binghamton, N. Y. A Division of General Aniline & Film Corporation.
"From Research to Reality."

Junior Scholastic

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NEWS ROUNDUP

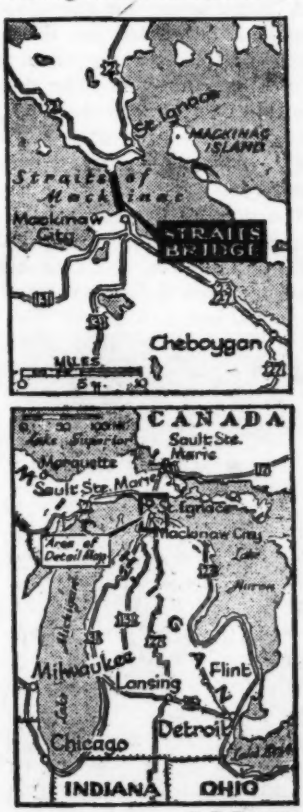
Michigan Will Build Long, New Bridge

Michigan is building the world's second longest suspension bridge. It will link the state's northern and southern peninsulas. They are separated by the four-mile-wide Straits of Mackinac, the waterway between Lakes Michigan and Huron (*see maps*).

The length of a suspension bridge is the distance between its suspension towers. The Mackinac Bridge will be 3,800 feet long between its towers. This is 400 feet shorter than the tower-to-tower span of the Golden Gate Bridge at San Francisco, Calif.

A four-lane highway, the bridge will be open to traffic in 1957. It will take the place of ferryboats now crossing the straits. The bridge will shorten crossing time from about 53 minutes to 10 minutes—not counting waiting time. Sometimes traffic is so heavy cars are delayed four hours or more waiting their turn on the ferries.

Michigan has been trying to build the bridge for years. But only last month did the state raise enough money to cover the cost.



N. Y. Times map

Maps show location of Michigan's bridge.

President of Turkey Is Touring the U. S.

President Celal Bayar of Turkey is visiting the U. S. on a good-will tour. He is the first Turkish president ever to visit the U. S.

Celal Bayar

"I wish to see Americans and the wonderful works they have created," President Bayar said, after he arrived in New York City. "I wish to thank Americans for sending aid to Turkey. I wish to strengthen the already strong bonds between Turkey and the United States."

President Bayar's coast-to-coast tour will last 26 days. He has visited President Eisenhower in Washington, D. C. He also has made stops at western cities. This week he will be in Dallas, Texas.

A beloved leader, President Bayar was a founder of the Turkish Republic. Mr. Bayar helped write Turkey's constitution, which reads in part: ". . . every Turk is born free, and free he lives."

Turkey today is a bulwark★ of freedom in the Middle East. Turkey is a member of the United Nations and of the North Atlantic Treaty Organization (NATO). Turkey was one of the first countries to send troops to Korea to fight the Communists.

President Bayar, 71, is a former bank clerk and schoolmaster. He is often called *Baba* ("papa") by Turkish villagers. He is responsible for many advances in Turkey. He set up Turkey's first bank, which became one of the largest in the Middle East. He set up many factories. In 1950 he gave Turks their first free election.

★ Means word is defined on page 32.

Historians Collect Franklin Papers

Early to bed,
Early to rise
Makes a man healthy,
Wealthy, and wise.

It is hard for an empty sack to stand upright.

The worst wheel of the cart makes the most noise.

These are but a few of the proverbs written by wise Benjamin Franklin. During his life, Franklin also wrote many letters, editorials, newspaper articles, scientific reports.

U. S. historians are now collecting these papers. They hope to find copies of everything Franklin wrote. The historians also will try to gather letters written to Franklin and material written about him.

Benjamin Franklin is looked upon as a great American, ranking with Washington, Jefferson, Lincoln. U. S. historians are eager to learn all they can about Franklin.

What was his true standing as a scientist?

How did he get along with his friends and family?

What were his goals for the U. S.?

Those are some of the questions the historians will try to answer. They will pore over thousands of papers to dig up the facts. All Franklin papers and materials known to the world will be photographed. The films will be sent to the historians at Yale University in New Haven, Conn. It will take 15 years to complete the work, which may run to 25 or 30 thick volumes.

All 347 Pro-Communist PWs Vanish Behind Iron Curtain

All 347 pro-Communist PWs of the Korean war have vanished behind the Iron Curtain. The PWs, including 21 Americans, had refused to return home. They said they wished to join the Communists.

At first the Communists refused to take the PWs. They were left unguarded in a prisoner camp. Then the Communists changed their minds. They said the PWs would be sent to Chinese and North Korean Red Cross groups.

All 21 of the American PWs were given dishonorable discharges from the U. S. Army.

Wide World

Copter hoists a new Marine shelter.

U. S. MARINES TRY OUT PLASTIC 'FLYING HOUSE'

A "flying house" big enough for 40 men is being tested for the U. S. Marines. It has a large dome made of a plastic-like fiber. The dome is as strong and hard as steel. It is designed to fit over a wooden framework with a wooden floor. The framework can be built quickly.

The dome is 18 feet high and 36 feet in diameter. It weighs about 1,000 pounds. In a recent test, a Marine Corps helicopter lifted the dome 100 feet into the air. The copter flew the dome through a stiff breeze for half a mile. Then, without any trouble, it set the dome gently on the ground.

NEW MARINE HOUSING

"This house marks a new era in Marine Corps shelter," said an officer. The house could be taken into any battle area and used as a barrack. Suppose the Marines advanced to new positions during the day. Houses could follow them by copter. By nightfall, the Marines would have good shelters.

The new house is rainproof. It is kept warm by a small stove and holds the heat well. Other branches of the U. S. armed forces are considering the new shelter.

Big Four Talks Open; Chief Topic: Germany

The Big Four opened important talks in Berlin, Germany, on January 25. The U. S., Britain, France, and Russia make up the Big Four. They are discussing Germany, Austria, and other problems.

At the start of the talks, Foreign Minister Molotov of Russia attacked the U. S. and the Western democracies. He was as bitter as ever. He made the same old demand that Communist China be invited to a Big Five meeting on world peace.

U. S. Secretary of State John Foster Dulles said: "I've heard that speech many times before. It's nothing new to me."

Molotov was trying to split the Western Allies, newsmen reported. But the West remained firmly united. Then, just as the Western Allies began to feel that the talks were completely hopeless, the meeting got down to business. Molotov and his staff became friendly and polite. The Big Four began to talk about uniting Germany.

Most people don't think there's much chance Russia will agree to unite Germany through free elections. But they say there's a better chance now than they thought.

Secretary Dulles held a short talk with Molotov to discuss President Eisenhower's atoms-for-peace plan. No news on that talk had been released as we went to press.

Noisy R. R. Diesel Horns Give Way to Steam Whistles

The hoarse-sounding air horns are coming off Diesel locomotives in the U. S. People living along the tracks complain that the croaking horns are too noisy. And they say Diesels don't sound like locomotives.

"The horn sounds like a ferry boat lost in a fog and tooting away—or like a bull moose calling for its mate," say Americans. "Give us back the good old steam whistle."

The Baltimore and Ohio railroad began testing a Diesel whistle which sounds like an old steam whistle. People liked the new whistle. The B & O has put it on all 800 Diesel locomotives. Other railroads also are beginning to use the new whistle on their Diesels.

News in a Nutshell

Leaping Lena is the world's champion jumping frog, report South Africans. Leaping Lena cleared 32 feet in a jump at Capetown's recent frog olympics. The best jump by a U. S. frog is reported to be 16 feet. If you'd like to read a funny story, read Mark Twain's "The Celebrated Jumping Frog of Calaveras County."

"Do boys and girls have as much opportunity today as when you were young?" a reporter asked former President Harry S. Truman on a recent TV program.

Mr. Truman answered: "Opportunity—in this great country of ours today? There never was a time in the history of our country when there was as much opportunity. Today opportunity knocks every day for everyone. I wish I were 19 years old again, instead of 69—to live to see the wonders that the new age, the atomic era, will produce."

Japan has given a peace bell to the United Nations. The bell is cast from medals and coins of 64 countries. Its name in Japanese is *sekaizettai-heiwa-banzai no kane*, which means "a bell for world peace." The 250-pound bell is about five feet high. It will be displayed at U. N. Headquarters in New York, N. Y.

Ever *hear* a magazine advertisement, then see it in 3-D? There's an ad like that in the January, 1954, issue of *Institutions Magazine*. Page 55 is a "talking" ad on stiff, shiny paper. Part of the ad shows a small record. You cut out the record and play it on a 78-rpm phonograph.

That's not all. The other side of the record is a picture in 3-D, showing the product advertised. You look at the picture through celluloid glasses which come with the magazine.

Cats and dogs galore! That's the story in the U. S. today. We have about 50 million cats. Our PUPulation is about 30 million. And every year the number of cats and dogs together increases by five per cent. About 30 per cent of our nation's 41 million families own one or more cats. About 40 per cent of the families own one or more dogs.

Science News

Coal on a Belt

"It's doing a bang-up job." That's what coal men say about a new coal conveyor belt in southeastern Ohio. The belt is the world's longest overland coal conveyor. It moves 800 tons of coal an hour. The coal is carried from the side of a mountain to a power plant five miles away near Beverly, Ohio.

The conveyor belt is powered by 14 electric motors. It travels at the rate of 600 feet a minute. The belt moves over wooded countryside, up and down hills, and along a slender bridge 65 feet above a river.

Studying Snow Crop

Snow is an important "crop" to a group of U. S. scientists and forest rangers. They work for the Department of Agriculture. Every winter the men study the snowfall on mountains in different parts of the West. They learn how much water will be available during the year. About 80 per cent of the flow of western rivers comes from melting snow.

Harvest time for the snow crop is in spring. In a good harvest, melting snow stocks streams and rivers with water for irrigation systems, power plants, and reservoirs.

A poor crop means hardship. It results in drought, power shortages, a skimpy supply of drinking water.

A "bumper" crop means trouble. Rivers will become swollen and flood over their banks. Floods damage farmland, destroy homes, kill people and livestock.

The scientists and rangers travel 37,000 miles a year. They measure the snow's water content. They plunge a hollow tube into the snow. Then they weigh the snow in the tube.

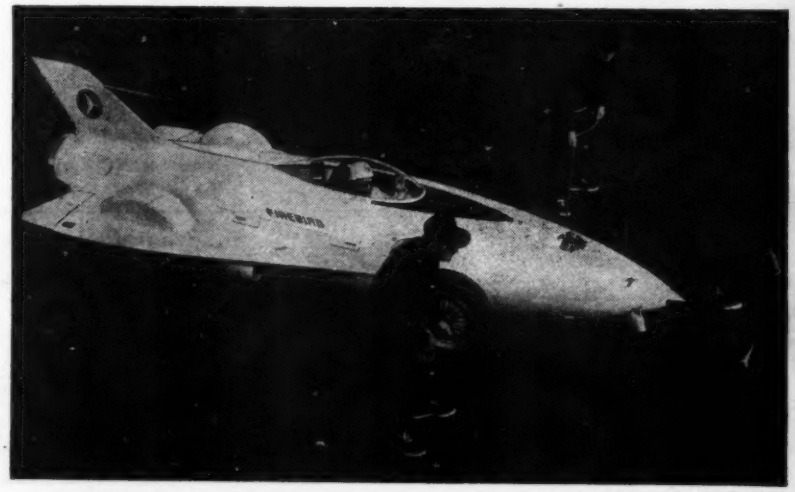
The snow's weight tells the men how tight the snow is packed on the ground. This is important information. Tight-packed snow yields more water than the same depth of loosely-packed snow.

First Jet Car

A rocket-shaped car with a jet-like engine has been built in the U. S. The car is being tested to see if jet motors can be used successfully in automobiles. It is an experimental model.

The streamlined car, built by General Motors, is the XP-21 Firebird. It is sleek and white, with a fiberglass body. The body is 55 inches high at its highest point. The Firebird has a vertical tail fin and swept-back wings. The trailing edge of the wings are brake flaps. The brake flaps and foot brake stop the Firebird.

A large tailcone opens out at the rear of the car. The tailcone is needed because of the great amount of air swooshed out by the Firebird. Its engine burns kerosene instead of gasoline. The engine's gases turn a turbine, which turns the rear wheels. The Firebird can do 200 mph.



Firebird is a single seater with a plastic bubble over the driver's cockpit.

The Panama Canal:

A Land Divided, the Oceans United

MOST short cuts save only a few yards, or a few miles. But the Panama Canal is a short cut which saves thousands of miles. It's one of the most important engineering works in the world.

The Panama Canal, linking the Atlantic and Pacific Oceans, was built in the early 1900s. Before then, ships crossing from one ocean to the other had to sail down one coast of South America, around Cape Horn, and up the other side. That was a trip of some 7,900 miles, and took several weeks. Today ships can pass through the Canal in eight hours or less.

The Panama Canal is only 50 miles long. But digging through that 50 miles was a tremendous job. The first man to try was a Frenchman named de Lesseps. He had already built the Suez Canal, which links the Mediterranean and the Red Sea. De Lesseps and his men started work in 1876.

For 10 years they struggled to build a canal. But they failed. Thousands of the workers were struck down by malaria and yellow fever. At that time no one knew that it was mosquitoes which spread those diseases. Finally de Lesseps' money ran out, and he had to give up.

U. S. TACKLES JOB

Less than 20 years later, the U.S. decided to have a try at the canal. Like the French, Americans picked an area full of lakes, ponds, and swamps for the canal. It was easy to dig into. And the natural waters of the lakes and ponds could form part of the canal itself.

By this time, scientists had discovered that mosquitoes carried malaria and yellow fever. So health workers, led by U. S. Colonel William Gorgas, went to work, killing the deadly insects. First they drained swamps. Then they cleared the jungles. They spread oil on every puddle of water. No place was left where mosquitoes could breed. Screens were put around houses. And so the mosquitoes were brought under control. But even today squads of sanitation★ police keep constant watch. When a "puddle alarm" sounds, indicating that mosquitoes have been found, the sanitation police race to answer it, just as firemen answer fire alarms in our cities.

ENGINEERS AT WORK

In 1907, U. S. engineers under the command of Colonel George Goethals started work on the Canal. First of all they had to decide on what level to build it. Only 15 miles of the 50 which separate the Atlantic from the Pacific are at sea level. The rest are on a plateau 85 feet above the sea.

So the engineers had two choices. They could dig down 85 feet all the way along. Or they could build a lock canal. The engineers decided to build a lock canal.

Let's take a trip through the Canal, and see how it works. Suppose you're going through it in an ocean liner, from the Atlantic to the Pacific. Just before your ship reaches the Canal, a pilot comes aboard to guide the ship through.

First he takes the ship through an opening in the breakwater★. On the other side of that opening, the Canal begins. For seven miles you sail along at sea level. Then you come to the first lock. The locks are like huge compartments. There are twin sets of compartments at each lock. Ships going one way use one set. Ships going the other way use the other set.

As soon as it enters the compartment, the ship's power is cut off. Deckhands cast lines ashore to connect with steel cables. These are drawn taut★ by four small, electric locomotives at the side of the lock. The locomotives are like tugs. They guide and pull the ship.

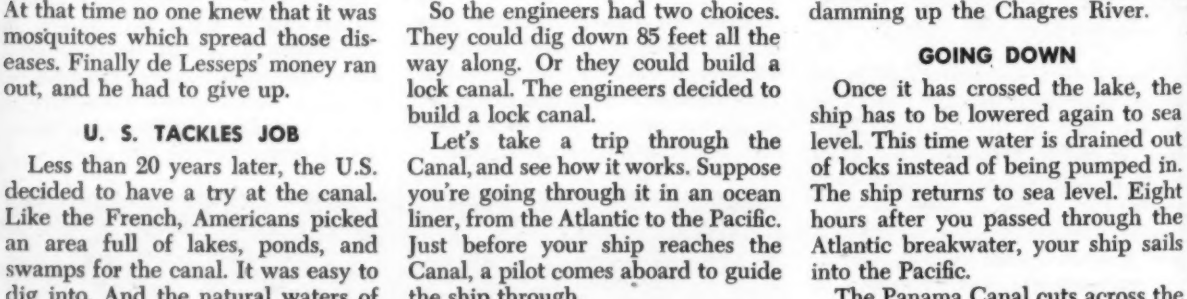
Once the ship is in place, two huge gates close behind it. The watertight lock is now closed. Water pours in, lifting and lifting the ship until it has risen 28 feet. Then it's as high as the water in the next compartment. The lock gates are opened, and the ship is drawn into the next compartment.

This process is repeated three times. Then at last the ship has reached the height of Gatun Lake, 85 feet above sea level. Gatun is an artificial lake. It was formed by damming up the Chagres River.

GOING DOWN

Once it has crossed the lake, the ship has to be lowered again to sea level. This time water is drained out of locks instead of being pumped in. The ship returns to sea level. Eight hours after you passed through the Atlantic breakwater, your ship sails into the Pacific.

The Panama Canal cuts across the middle of the Panama Canal Zone. The Canal Zone covers 648 square



HOW THE LOCKS WORK: While ship was in lock marked "Fig. A," sluices drained water (see arrows) into next lock, "Fig. B." Ship was then at level of next lock, B. Watertight gate opened. Electric locomotives moved ship forward into lock B.

miles. Though small, it's one of the most important areas in the world. In peacetime thousands of ships, carrying people and goods, pass through the Canal every year. In wartime our ships and troops use it to pass quickly between the Atlantic and the Pacific on their way to the world's battlegrounds.

The U. S. Government knew how important the Canal would be even before it was built. In 1903 our Government signed a treaty with the government of Panama. This treaty gave our Government control forever over the Canal Zone. The Zone is like a little piece of the U. S., standing in the middle of Panama. It's run by the Panama Canal Authority, a branch of the U. S. Government.

The Government's first job in the Zone is to keep the Canal in working order. Our Government keeps thousands of troops there, watching to see that no one damages it. They search ships which come in, looking for concealed bombs which might be used to blow up the Canal.

GOVERNMENT RUNS ALL

The Government runs everything in the Zone. It owns restaurants, movie theatres, parks, swimming pools, laundries, and everything else. Its workers roast coffee, slaughter cattle, bake bread, and build homes. They collect the garbage, operate the ports, and run the railroads.

Running the Canal is an expensive business. So the Government makes all ships pay to use the Canal. Ships pay according to their size. An average steamship may pay anything from five to ten thousand dollars; a big one may have to pay up to 30 thousand dollars. Only ships belonging to the U. S., Panama or Colombia governments can use the Canal without paying.

Some of the money from tolls goes to the Panamanian government. The U. S. pays Panama $430,000 in rent every year. But the Panamanians are not satisfied. Recently President Remón of Panama paid a visit to President Eisenhower. Remón brought a list of requests with him. For one thing, he told President Eisenhower, the Panamanians want a bigger share of the millions of dollars the U. S. collects every year from tolls.

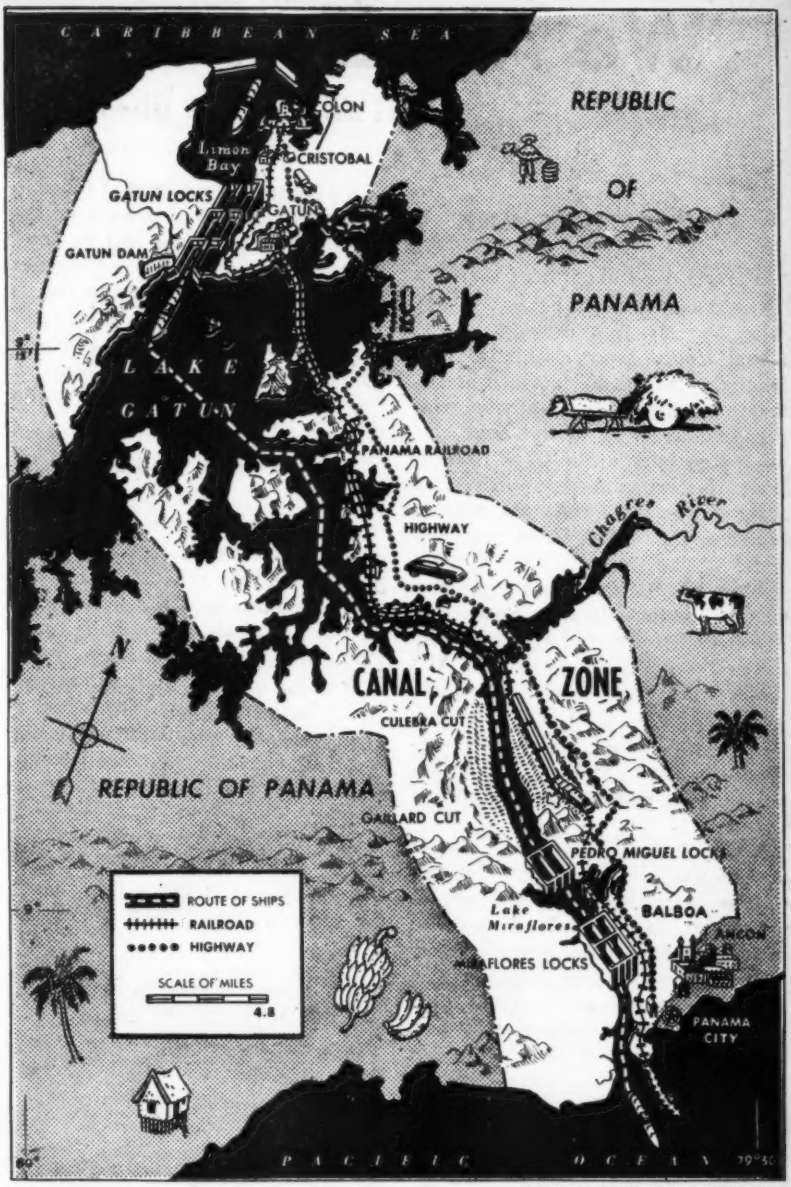
Remón also said that the Canal Authority was ruining Panamanian business. When the Canal was built, many Panamanians started shops or businesses. They hoped for plenty of trade with people going through the Canal. But the U. S. Government stores in the Zone can sell goods cheaper than the Panamanians can. So many Panamanians are being driven out of business.

And lastly, said President Remón, the U. S. is unfair to Panamanians who work in the Canal Zone. They get paid smaller wages than U. S. citizens who do the same jobs.

The U. S. Government is now considering President Remón's complaints.

The Panamanians' complaints aren't the only thing troubling the U. S. Government. The Canal itself is worrying us. It's out of date. Our biggest ships can't get through it. Some people say we should do away with the locks, and build a new and bigger canal at sea level. Others think we should just fix the Canal up, make the locks bigger, and go on using it.

Nobody is sure what our Government will do. But one thing is certain. We will keep the Canal going.



Map for Junior Scholastic by Walter Galli

The Panama is a fresh-water canal, and most of its water comes from the Chagres River. A dam controls the river's flow. Water is stored for dry season in Gatun.

*Means word is defined on page 32.

We Are Zoners

As told to Ralph K. Skinner

By LINDA LONGMORE

"IF YOU don't like it here, there's a ship leaving every Friday." That's what we say to grumblers in the Canal Zone. Every week a ship belonging to the U. S. Government leaves for New York. So anyone who doesn't like living in the Zone can always go back to the U. S. No one takes the expression seriously. But it shows how close the connection is between the Canal Zone and the U. S.

Most U. S. citizens stay in the Canal Zone for only a few years. But I've been here much longer. In fact, I was born here 13 years ago. My mother and father both have good jobs working for the Canal Zone Authority. My mother is a civilian who works for the U. S. Army. My father is a pilot. He steers ships through the Canal.

Being a Canal pilot is a difficult and responsible job. Every pilot has to have had at least 12 years' experience at sea. He must also have commanded a ship. Usually a pilot has to guide three or more ships through the Canal every week. The ships vary from 70-foot banana boats to aircraft carriers.

Photos by Skinner

Linda is 13 and in 8th grade.

A pilot takes command of the ship while it's a couple of miles from the Canal entrance. Then he's in complete charge till it reaches the other ocean. Sometimes, when the fog is thick or the rains heavy, pilots can't see more than 50 feet ahead. But they know the Canal and all its turns so well that they manage to bring the ships through.

AT OUR HOUSE

My father is a senior pilot, which is a good job. We live comfortably in a three-bedroom cottage at Balboa. Like all the other Zone houses, it is owned by the U. S. Government. I go to school about one mile away. During the school year I get up at 6:30 in the morning and have cereal and milk for breakfast. The bus ride to school takes ten minutes. I come home by bus for a lunch of sandwiches. Our big meal is in the evening.

Generally speaking, our food is the same as in the United States. Our Government stores here carry the same items as States grocery stores.

We also have local fruits and vegetables. These include papaya and mamei as fruits, and pejibaye nuts, breadfruit, yucca, yame, and a few other vegetables.

We often have Spanish dishes in our menu, but Mother doesn't like things too spicy and we can't season the peppery Latin-American dishes as the natives do. *Arroz con pollo* (rice with chicken) is a favorite with us, and so is *sancocho* (a Panama stew).

Canal Zone schools are good schools. This year I'm in the eighth grade and taking home economics, math, English, social studies, art, Spanish, and gym. I particularly enjoy home economics, which includes cooking and sewing classes. I like to cook, and sometimes do it at home. I like to sew, too, and have made some of my own clothes.

In our schools, pupils have to take several years of Spanish. Knowing Spanish is a big help in Panama, because all the people speak it outside the Zone. Strange to say, I don't speak Spanish as well now as I did when I was a little girl. Then I had a nursemaid to take care of me. She spoke only Spanish. Afterwards I used it less and forgot it.

I play a lot of games at school—basketball, volleyball, and softball. And I swim a lot, as all Canal Zoners do. There is never any real winter in the Zone, so swimming is a very popular sport. We belong to a club, where the water is protected by a net to keep sharks out.

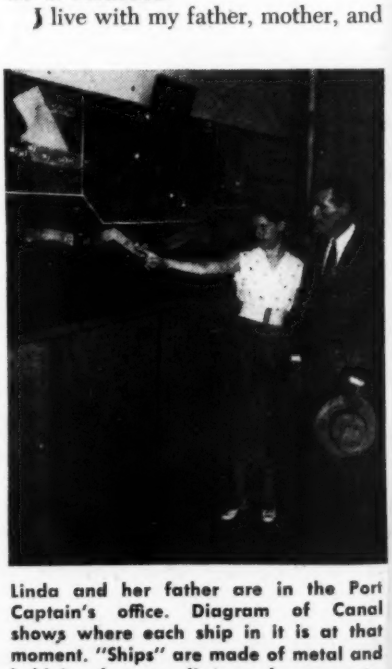
I've also done a lot of ballet, tap, and acrobatic dancing. And I've just learned ballroom dancing. I am a Girl Scout and keep busy with its weekly meetings. This year there were more than 1,000 Girl Scouts in the Zone. That's a lot for an area where only 40,000 people live.

I'd like to hear from boys and girls in the States, though I may not be able to answer all the letters I receive. My address is: Box 493, Balboa, Canal Zone.

By EARL P. MARTIN

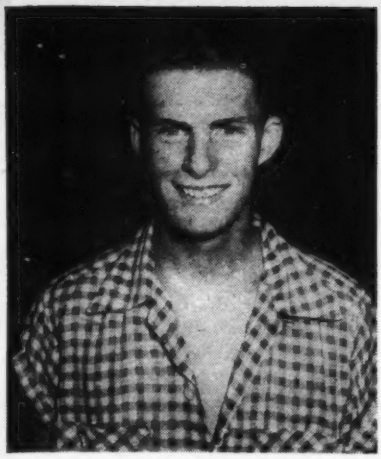
I'M ONLY 15 but I live on a military post for servicemen in the U. S. Armed Forces. My father is a Lieutenant Commander in the U. S. Coast and Geodetic★ Survey. I live where he is stationed.

I live with my father, mother, and



Linda and her father are in the Port Captain's office. Diagram of Canal shows where each ship in it is at that moment. "Ships" are made of metal and held in place on diagram by magnets.

WORLD FRIENDSHIP SERIES



Earl is 15 and a sophomore.

elder brother Bill, at Fort Clayton, which is an Army post. My father is one of thousands of U. S. servicemen here to help defend the Canal. His job is making maps of South America.

Like most other children of military families, I have traveled a lot. I've lived in many parts of the U. S. Just before we came here, we were living in California.

Children of many different nationalities go to Balboa High School here in the Zone. Most of them are children of U. S. servicemen. Others are children of foreign diplomats who live in Panama. Some are children of wealthy Panamanians. Panamanians like to send their children to our schools, because our schools are very good.

There are 800 students in my school. I am a sophomore. This year I am taking Spanish, English, geometry, U. S. history, biology, and ROTC. All the boys at school are in ROTC, even the Panamanians.

My school studies are much like yours. So are the sports. I play baseball, golf, basketball, and football. I don't enjoy most sports, though I do quite well in them. I'd rather stay home and read, or go to the movies. I like to swim and fish. There's plenty of deep-sea fishing here, and lots of fish to catch. A couple of natives out in a small canoe recently caught a 750-pound sawfish which was more than 14 feet long.

Apart from school and games, life in Panama is quite different from life in the U. S. For one thing I live on an Army post, and rarely go off it. On the post everything is run Army style. We have our own shops, movies, churches, clubs, and entertainment of every kind. Going to a civilian town is expensive and takes time. So we rarely go.

For another thing, we don't have many parties. When I lived in California, young people got together every week end. They just don't seem to do that down here. We do have a teen-age club at Fort Clayton, and hold picnics, swimming parties and sometimes a dance. Down here you have to be 18 to drive. So neither Bill nor I can. I'm saving for a motor scooter like Bill's.

Another thing I miss here is TV. There's not a single TV station and most of the Panamanians have never seen TV. I think they'd enjoy it because often the weather is too hot to play games.

My father flies to many countries as part of his job. Often he brings back souvenirs. Recently he brought an Indian bow from Bolivia. It was terribly hard to bend. Now I can believe the tales that Indians lie on their backs, brace the bow between their feet, and use both hands to draw it.

If any of you would like to write to me, my address is Box 652, Fort Clayton, Canal Zone. But I can't promise to answer every letter.

Earl holds Indian bow from Bolivia. Colored bird feathers decorate it.

★ Means word is defined on page 32.

Right This Way

A boy from Dover (Ohio) Junior High wants to know:

Is it correct for a boy to get off a bus before his date does?

Yes, getting off the bus first allows the boy to turn around and help his date down the bus step. The boy usually steps aside to let his date get on a bus first, so that he may help her up the step.

Pat Gibbs, Macfarland Jr. H. S., Washington, D. C., wants to know:

When I'm walking home with a boy and he puts his arm around me, should I put mine around him?

It isn't a good idea to let a boy put his arm around you when you're walking down the street. It's never in good taste to make an exhibition of yourself, and if you put your arm around him, too, you'd look even worse.

Instead, ask the boy nicely to take his arm away. Be pleasant, but firm. If he's a nice boy, he'll understand, and there won't be any hard feelings.

A girl from Sweet Water School, Dixon Mills, Ala., asks:

Should you invite a boy in after a date?

If it's not late and your parents are awake and around, it's all right to invite a boy in for a snack. Otherwise, say good night at the door. You can invite the boy to come in another time when it isn't so late.

NEW MOVIES

✓✓✓✓Tops, don't miss. ✓✓✓Good. ✓✓Fair. ✓Save your money.

✓✓✓✓**KNIGHTS OF THE ROUND TABLE** (MGM). This movie is every bit as spectacular, exciting and adventuresome as you would expect the stories of King Arthur to be. On the gigantic CinemaScope screen, the film becomes one long pageant. When knights aren't warring, there are tourneys to keep the boys busy.

Through it all winds the story of Arthur and his efforts to unite all England. He is aided by his loyal friend, Sir Lancelot. His wicked sister Morgan Le Fay plots to divide the knights. It isn't all strictly according to the legend, but it makes a good story. Mel Ferrer is fine as the noble Arthur. Robert Taylor is Lancelot, and Ava Gardner is Guinevere.

Old Golden School Days

AROUND 1890 a new subject made a big hit with pupils of city schools. The subject was physical education. It was then being taught in U. S. grade schools for the first time.

In some schools, "phys. ed." classes were held two or three times a week. A class lasted 45 minutes. In other schools, these classes were held every morning. Girls and boys lined up in the school yard. They did simple arm and leg exercises for a while. Then they ran relay races.

No one could run very fast. Pupils didn't have gym outfits in those days. They wore their everyday clothing—high shoes, stiff collars, starched dresses, close-fitting suits. But racing games were popular.

CLOCK-WALKING RACE

One favorite game was the clock-walking race. Players formed a large circle in the school yard. The teacher stood in the center of the circle. Every six players made up a team. Each player on a team was numbered, one through six.

At the teacher's "Go!" all the number ones took a step back. Then they'd start walking around the circle of players. They walked until they returned to the place they had started from. As soon as a number one returned, the number two of his team started walking. When number two returned, number three began walking, and so on. The winning team was the one whose sixth player was the first back to his starting point.

City schools were about four stories high. They had lots of windows and big fire escapes. Fire drills were held at least twice a week. Pupils quietly followed the teacher out of the room and down the fire escape. They walked a block from the school, then returned—without speaking.

Halls in city schools were dimly-lighted and narrow. Classrooms were big. There were enough desks for about 50 pupils. All the short pupils sat up front, the tall ones in the back. In very crowded rooms, pupils without desks stood along the rear wall.

When reciting, a pupil stood up straight, his hands pressed against his sides. When sitting, he kept his hands folded on the desk.

Most room doors were glass-topped. Often the principal left his office and walked down the halls. He stopped at every door and looked into the room. If he saw someone misbehaving he rushed in. The pupil would be punished. He would have to stand in a corner or stay after school.

One of the most important subjects was called *penmanship*. It was the practice of handwriting. Pupils had to learn how to make neat, clear letters. They spent hours at the blackboard or their desks forming *o*'s, looping *g*'s, crossing *t*'s, and so on.

Spelling was a favorite subject. The class would spell new words out loud. Once a week they had a spelling bee. Everyone took part. The two best spellers were the captains. First one captain picked a player for his side, then the other captain picked one. It was a thrill if a captain picked you as his first man. That meant you were a good speller.

The teacher would ask each player to spell a word. If you got it wrong, you were out of the game. When the last man on one side went down, his side lost. The class would hold its breath when the last man was spelling a hard word like *embarrass, privilege, ecstasy,* or *schism.*

On Friday afternoon, the class sang together. Some old favorites were *Funiculi-Funicula, Reuben and Rachel, Old MacDonald Had a Farm, Three Blind Mice, The Old Gray Mare.* And everybody liked songs by Stephen Foster.

PAY BY HEIGHT

Sometimes a school would try to raise money to buy a piano for the auditorium. A few classes would put on plays. They sold tickets for the show. Grownups paid a penny for every two inches of their height. Pupils would measure them at the door.

After the show ended, the pupils gave out small prizes. A prize went to the tallest man, the shortest woman, the man with the baldest head, the woman with the curliest hair. Then, before going home, the audience sang *America the Beautiful* and *The Star-Spangled Banner.*

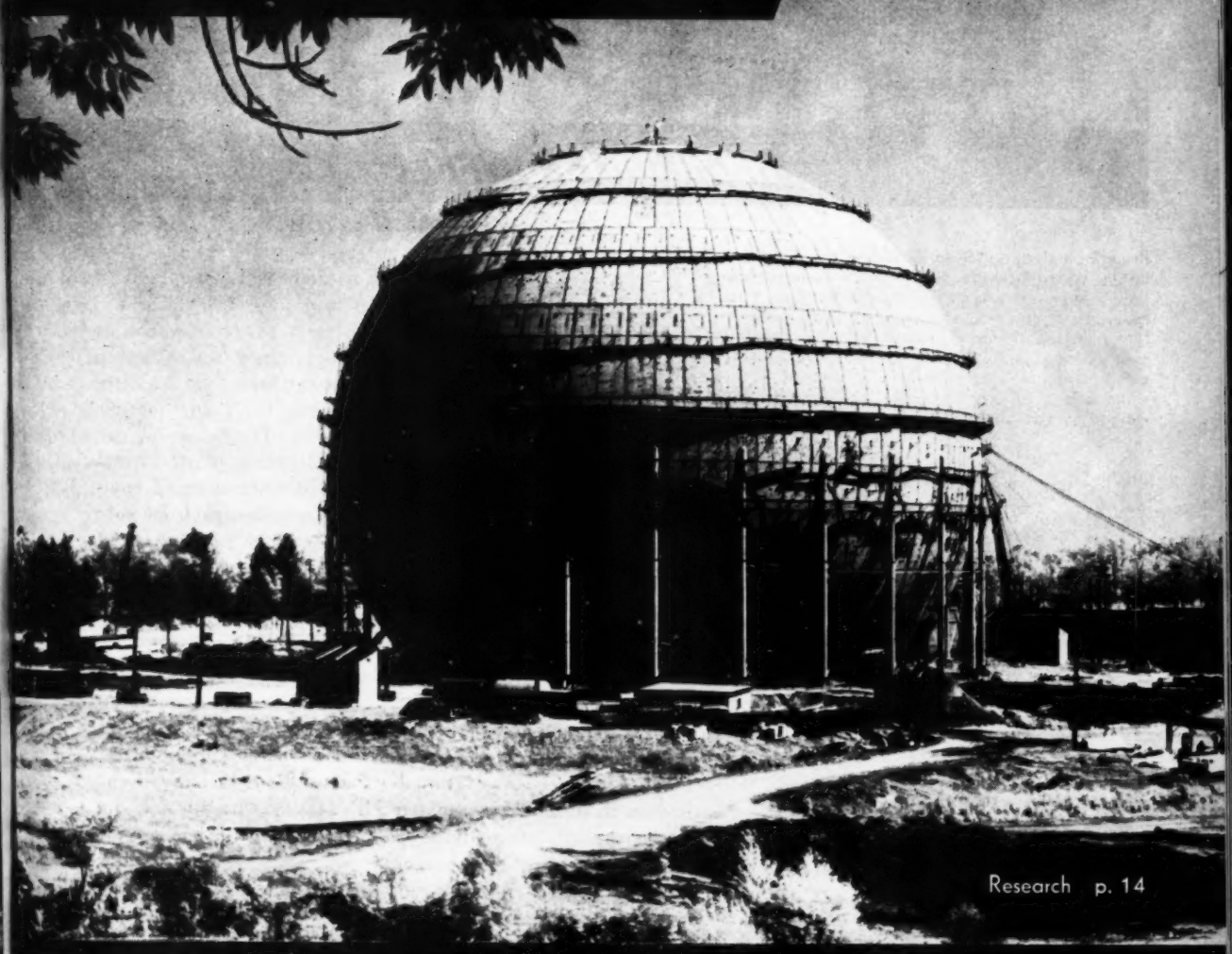
Brown Brothers photo

Hands folded, these young pupils listen to a classmate reciting a poem.

General Electric

HIGHLIGHTS of 1953

A Report to Young America on Electrical and Allied Developments



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scle Power p. 3

Better Living p. 6

For Our Defense p. 9

Our New Servants p. 12

GENERAL ELECTRIC

HIGHLIGHTS of 1953

Rising as high as an 18-story building, this giant steel ball at West Milton, N. Y., will house the prototype power plant for an atomic submarine. (See back cover.) Part of an elaborate plan to prevent radiation from escaping in case of mishap, sphere will double as a testing tank. Power plant will be enclosed in an actual section of submarine hull. To simulate underwater operating conditions, the hull may be submerged by partially filling sphere with water.

LAST October 15 we celebrated 75 years of electrical progress, marking that day in 1878 when a small company, headed by Thomas Edison, was founded. Its sole purpose in being was the invention of a practical electric lamp.

With Edison's invention of a light just a year and a week later, on October 21, 1879, electricity came into the lives of our fathers. Slowly, that is; for, three years after its invention, Edison had only 59 customers for his lamp.

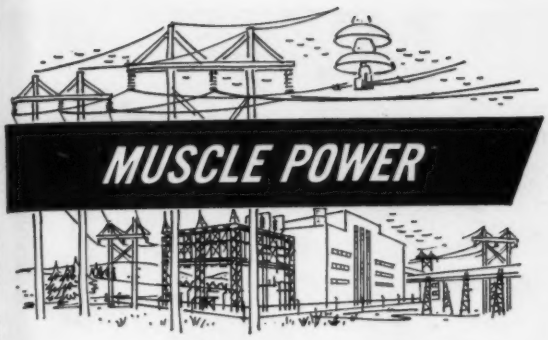
In 1892, the beginning spark flamed into notable progress with the combining of the Edison General Electric and Thomson-Houston companies to form the General Electric Company.

Today, the electrical manufacturing industry supplies four per cent of the Gross National Product. By 1961, it will be called on to supply an estimated 5.5 to 6 per cent. In fact, the electrical industry must be prepared to grow more than twice as fast as the rest of the economy.

Highlights of 1953 brings you just a few of the year's developments. But it is tangible evidence of progress, of man's technical daring and foresight.

Many of the marvelous things to come will grow and bloom in your working lifetime. Today there are more opportunities for you than there were for your fathers, and these opportunities will increase in growing proportion.

The fun of the challenge is yours: to base yourself in the fundamental studies and to gear yourself up, in your thinking, to build your future in line with the complex but fascinating civilization that lies ahead.



MUSCLE POWER

for Industry, Utilities, and Transportation

FOR every 100 people in the world, only six are inside the borders of the U.S.A.; yet we produce 40 per cent of the world's goods. How?

Obviously, the answer is not in numbers of people. It is in machines. Mechanization and electrification multiply our manpower many times over.

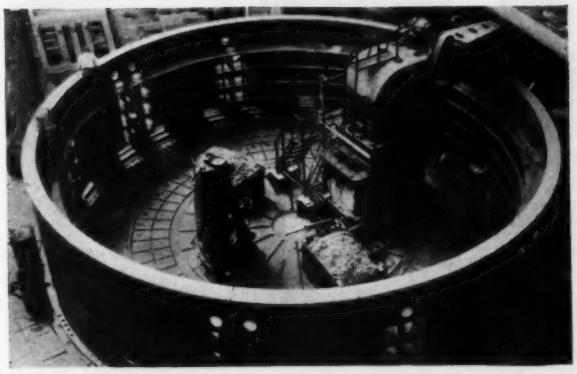
Take a one-horsepower electric motor, for instance: it can do the work of 22 strong men, and it doesn't tire or take time out for food.

Or, consider the great generator which hums steadily in the neighborhood powerhouse: it can do the work of a million men.

Today, the American worker has about 7½ horsepower at his fingertips—the power of 165 big men.

Between January of 1953 and 1961, our population will have increased by some 20 million additional Americans. To feed them, clothe them, transport them, and supply them with the necessities and luxuries of our way of life, we must build more—and better—machine muscle power.

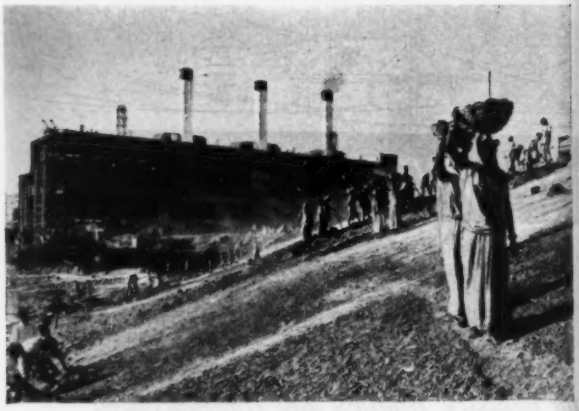
A man's eye view of the hardest metal made by man. This new masonry drill is tipped with tungsten carbide, produced by G.E.'s Carboloy Department. This super-tough metal has revolutionized the stone-cutting and machine-tool industries with its long life and cutting speed.



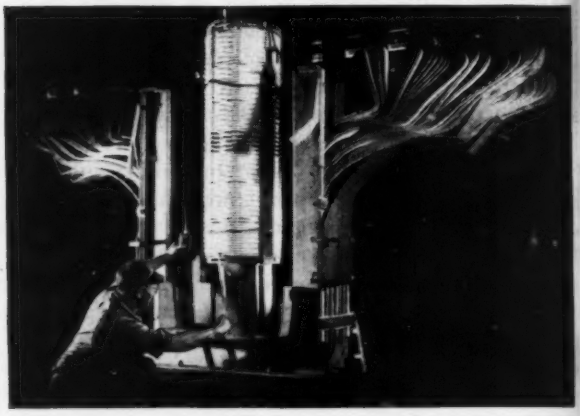
Huge stator frame is cut to size in the shop. It will house the rotor of a hydraulic turbine-driven generator. Twelve such G-E generators at the Columbia River's McNary Dam will produce electric power for area homes and industry. Each generator weighs 2,500,000 pounds.

This propeller-toothed monster is the world's largest hydraulic pipeline dredge. Its job is deepening the St. Lawrence River's Beauharnois canal to 35 feet to provide more water for Quebec's Beauharnois powerhouse. The dredge, powered by G-E apparatus, can suck up 1500-pound boulders. When completed, Beauharnois will be the world's largest single-site hydroelectric plant.

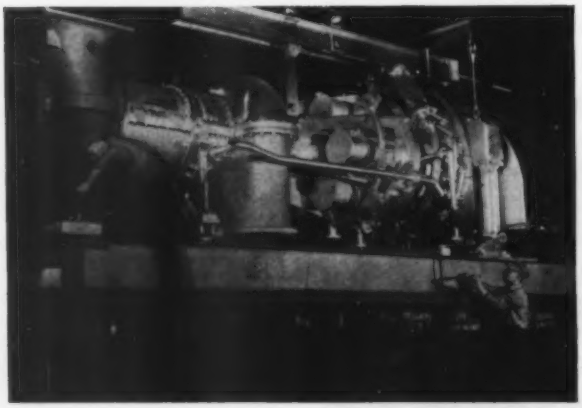
Circuit breakers maintain order, help prevent breakdowns in electric power systems. World's largest (25 million kva), shown here, is adequate by today's standards, but the future will call for more advanced designs. Today our country uses about 400 billion kilowatt hours annually and will probably double this in 10 years.



Age-old labor methods help build a modern steam plant in India. $15,000,000 worth of G-E materials and services have been supplied to the Bokaro steam power station, part of a project to harness the Damodar River, near Calcutta. Completed project will control floods, irrigate farm land, give India much-needed power.



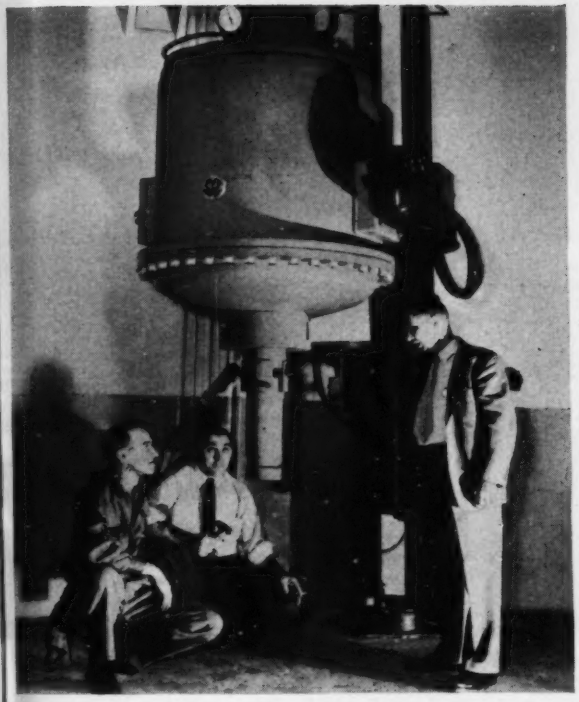
This odd-looking "bird" is a new type pre-formed core for small power transformers. Made of grain-oriented, cold-rolled silicon steel, the core makes possible smaller, lighter transformers, cuts power losses. Cores carry the electromagnetic energy which steps voltage up for long transmission, down for distribution to users.



Keeping natural gas flowing through pipeline from wells in Texas to consumers in California is the task of this 5700-hp G-E gas turbine being readied for shipment to Cornudas, Texas. One of 28 to be installed for the El Paso gas transmission system, the turbine operates economically by using some of gas it pumps for fuel.

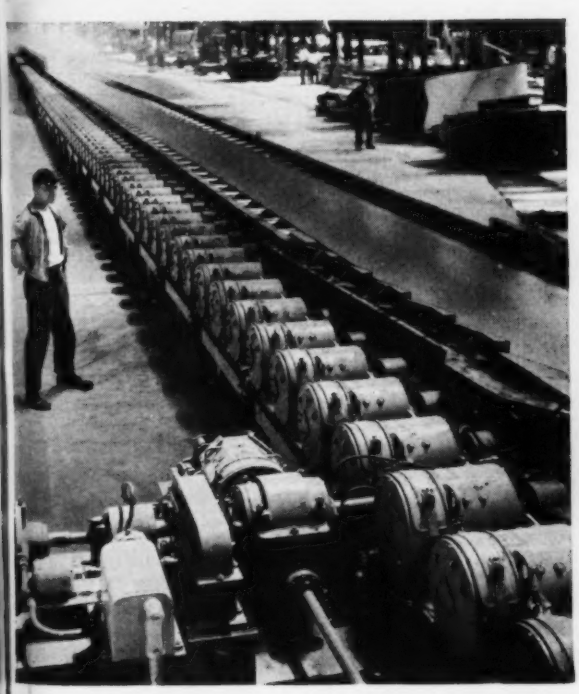
New York Herald Tribune Photo

No coal shovel for the fireman on this run. Pictured here is a new type tank car loaded with propane gas, a fuel being used experimentally by the Union Pacific on a G-E gas turbine locomotive. These turbines, similar to one at left, need almost no water, burn low-cost fuel, are well suited to long hauls through arid country.



Bombarding aircraft valves with x-rays, this 1,000,000-volt G-E industrial x-ray machine looks inside the metal to uncover any defects. Its 360-degree beam allows inspection of several hundred valves at once, speeding production. A new, fully automatic developing and drying machine quickly processes films for study.

Antenna of new radar safety system at Norfolk, Va., airport spots planes 30-60 miles away. Radar screen, developed by G.E., records only moving aircraft, eliminating images of large stationary objects which obstruct small aircraft "pips." Operator locates tall buildings and mountains from map overlay, warns planes away.



More steel for industry. A lineup of 177 G-E three-hp motors moves steel along a runout table at a 20 mph clip at the Pittsburgh Steel Company's new Allenport, Pa., mill. Steel plants use approximately 6 per cent of all power generated in the United States, 12 per cent of all power used by industry.

Largest bulk ore carrier ever built on the Great Lakes is the 690-foot *Ernest T. Weir*, shown here squeezing her 70-foot beam through a tight place. Powered by a 7000-hp G-E steam turbine, the *Weir* can carry a record 20,000 long tons of cargo at 16 miles per hour, has crew's quarters that offer comfort of a modern hotel.

TOWARD BETTER LIVING

Developments for a Fuller Way of Life

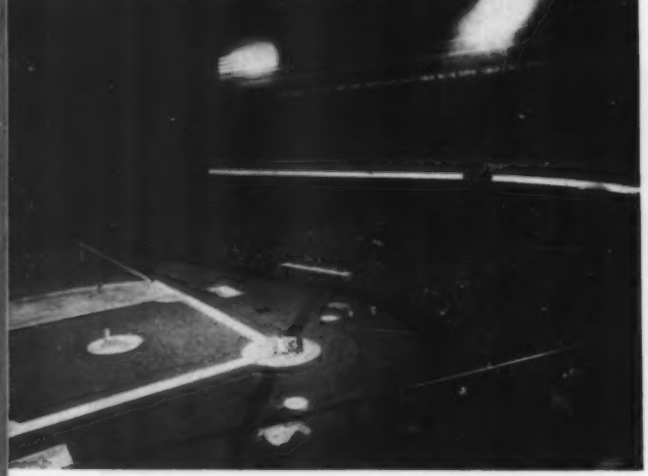
STANDARD of living isn't an easy term to define. But what it boils down to is essentially this: it is your level of living comfort as compared to that of the people of, say, Italy or Switzerland or Russia. It is measured in such things as bathtubs and automobiles and refrigerators and bread and education.

Pictured on these pages are some of the things which combine to give you a standard of living unequalled by any other people on earth.

Powerful x-ray devices for healing the sick; better lighting for classrooms and city thoroughfares; improved television transmission and reception; informative and entertaining films and publications for use in our schools—through such things as these, General Electric people are striving to contribute their bit toward better living.

This is just the beginning, really. Research and engineering are bringing out new things faster than ever to lighten labor and brighten everybody's life.

Better street lighting makes our towns and cities safer, more pleasant places in which to drive, to walk, and to live. Shown here is Oakwood, Ohio's, main street illuminated by fluorescent luminaires which provide virtually glareless lighting. Experts predict that every major city in the United States will have similar installations within ten years.



Home of the Braves. At the Milwaukee Stadium the 1953 Braves tackle an out-of-town opponent under multiple batteries of G-E floodlights. Stadium and playground lighting has greatly increased participation in active and spectator sports, bringing after-work exercise and entertainment to new millions.

Forging a new weapon to fight cancer. An employee of G.E.'s X-Ray Department spot welds silicon steel strips for transformer winding of a 2,000,000-volt x-ray therapy machine. Constant research has greatly reduced size and increased voltage of such machines, brought prices within reach of many more hospitals and institutions.

Amateur and professional photographers will benefit from these tiny light sources—sub-midget flashbulb (bottom) and new repeating flashtube for portable dry battery equipment. Both give improved light control, use less energy, have added safety features.

Nerve center of General Electric's new "one-man" TV station is this control panel, which permits a single technical operator to prepare and broadcast film and network programs. Designed to speed establishment of TV channels recently allotted to 1100 small cities, equipment costs only one-fourth as much as that of the average station.

It's 1000 feet up to the antenna which tops the tower of Reading, Pa.'s, WHUM-TV, the nation's first high-power, ultra-high-frequency television station. Here a G-E electronics engineer assembles waveguide which carries TV signals from transmitter to antenna. Ultra-high-frequency television makes room for more channels, means entertainment for more people.

These miniature vacuum tubes won't bring words and music right into your ear, but they will improve your TV reception. Made of metal and ceramics, their electrical qualities are superior to glass tubes. In fringe areas, TV sets using them will operate as if transmitting stations were 10 times more powerful.

Spot or Flood? Flick the switch on this new flashlight and it throws either a spot or a flood of light. The secret is in the G-E flashlight bulb which contains two filaments like those of an auto headlamp. Spot-flood eliminates twisting to adjust light beam.

Not all the assembly lines at G.E. produce electrical products. Above, at the Company printing plant in Schenectady, N. Y., mailers wrap free educational comics and science booklets which explain workings of things such as you see here in Highlights.

1953 booklet called Why Study Math? It tells why all future bread-winners should have some math training.

Scene from A Is For Atom, 15-minute color movie.

Well-lighted, well-equipped classrooms are better, more pleasant places to study. G-E fluorescent luminaires in this Pittsfield, Mass., high school room have been engineered and installed to give each student the proper amount of light. Colorful G-E Textolite plastics desktops add to room's attractive appearance, reflect light properly to minimize eyestrain. Resistant to ink, chalk, and scratching, Textolite reduces maintenance costs, provides smoother writing surface than wood.

"Fun with French," an experiment in teaching a foreign language to younger children, is part of the educational TV project begun at G.E.'s station WRGB in Schenectady, N. Y., in 1953. Sponsored by civic and educational groups in conjunction with WRGB, the project televises small class groups (left) and relays the instruction via TV to schools throughout the area (right).

FOR AMERICA'S DEFENSE

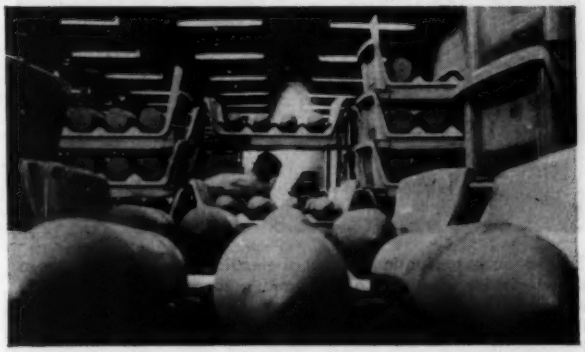
Keeping Our Nation Strong Through Science and Engineering

IN meeting our responsibilities for defending the free world, we of the United States cannot count on sheer mass of manpower and materials, for we are outweighed in these categories. Rather we must depend upon our ability and freedom to think—to outdevelop our adversaries with more advanced machines and methods.

General Electric is proud of the contributions its scientists and engineers have made to our nation's defense over the years: the first supercharger for high-altitude flying, power systems for the first all-electric battleship, the first American tungsten-carbide cutting tools for high-speed armament production, the first American-built jet engine. The Company is the largest single maker of naval propulsion systems and military jet engines. Its scientists have aided in the development of rockets, guided missiles, and atomic energy.

These pages show something of what G.E. has done in the past year to help keep America strong.

One of our most formidable air weapons is this F86H Sabrejet, built by North American and powered by a G-E J-47 turbojet engine. United Nations Sabrejets in Korea scored an impressive 11-1 kill ratio over Russian-built MIG's. F86H is combined fighter-bomber, day fighter.



Anti-tank shell cores, made of tungsten carbide, are stacked prior to final heat treatment at G.E.'s Carboloy Department plant. These cores, molded of the hardest metal made by man, can be used to penetrate the thickest tank armor, even when fired at a 20-degree angle.

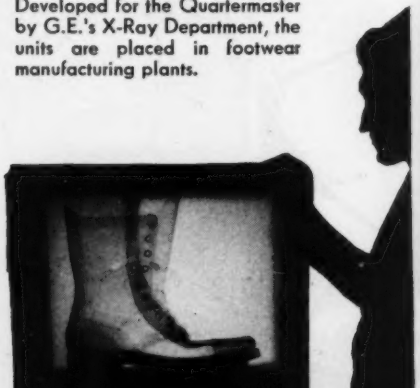
A Navy guncrew swings on-target with a Mark 56 multiple-purpose radar gunfire control system. Produced by G.E.'s Aeronautic and Ordnance Systems Division, the Mark 56 does the "paper work" problems involving speed, distance, angles, that are necessary to train guns. It can be used to control several types of gun.

This 50-ton stator (stationary part of electric motor) will help create supersonic air blasts for aircraft and guided missile research at Moffett Field, California. The stator is for one of four giant wind tunnel motors, which together will generate a maximum of 216,000 hp—greatest load ever concentrated on a single shaft.

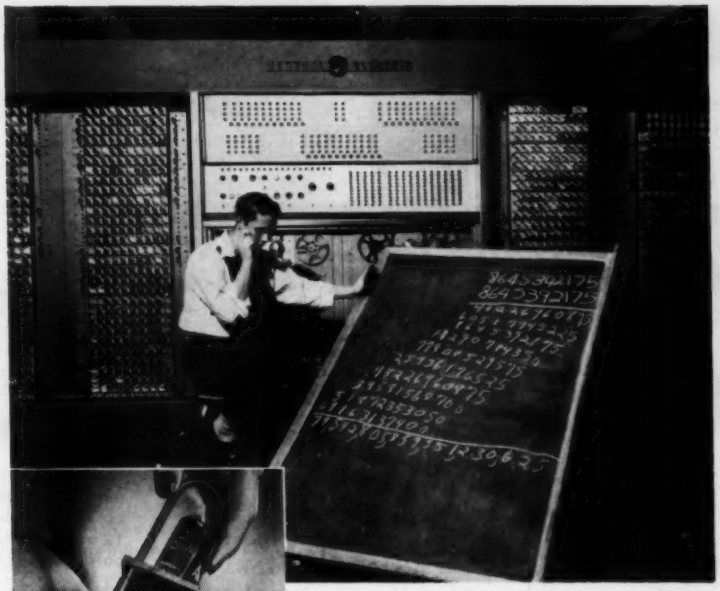
Rotor for stator at left being transferred from special flat car to floating derrick at Albany, N. Y., on the first leg of its trip to National Advisory Council for Aeronautics Laboratory at Moffett Field. Rotor was so wide (14 feet) that railroad tracks had to be cleared both ways to Albany from plant at Schenectady.

General Electric engineers check jet engine test tunnel atop New Hampshire's Mt. Washington. Chosen for its consistently bad weather (winds up to 230 mph, temperatures as low as 46 below zero, year-round fog), the mountain is the site of an Air Force project to check jet engines for "let down" performance in critical icing conditions. Building used for testing is literally chained to the 6240-foot peak.

Making life easier for the Infantry. A new fluoroscopic footwear-inspection unit now in use by the Army spots missing or protruding nails and checks for other hidden faults in Army boots and shoes. Developed for the Quartermaster by G.E.'s X-Ray Department, the units are placed in footwear manufacturing plants.



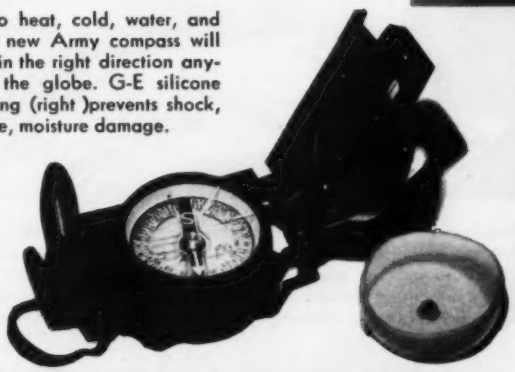
This young man isn't as strong as he looks. He is holding a block of feather-light G-E phenolic foam. Buoyant and fireproof, it is used to fill anti-torpedo blisters on aircraft carriers to prevent listing in case of an enemy hit. Poured into blisters, liquid expands up to 300 times into foam when catalyst is added. Foam is also used as an insulator.

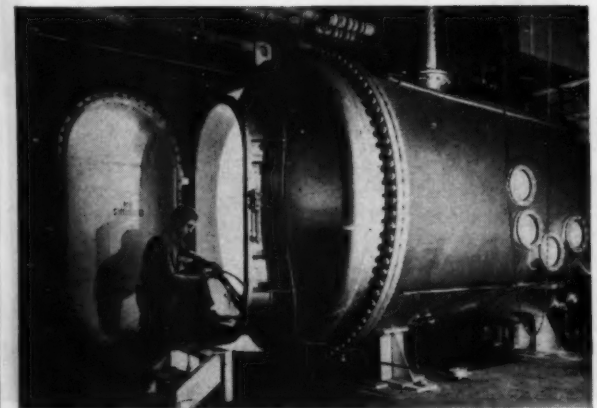


Can you multiply 8,645,392,175 by itself in 10 minutes?* This G-E computer can do it in 4/1000 of a second. Built for the Air Force, it solves complex aircraft design problems that would take a mathematician years. Replaceable circuit turrets (left) make maintenance easy.

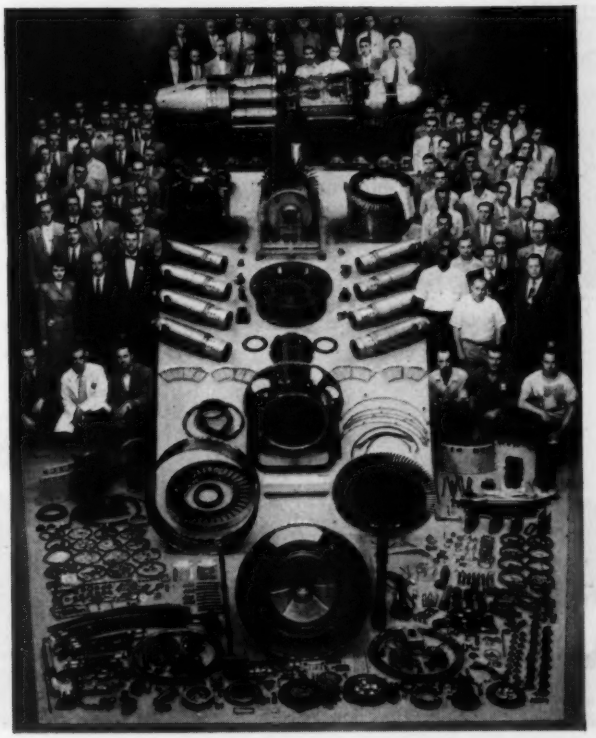
*Answer: 74,742,805,859,551,230,625.

Resistant to heat, cold, water, and shock, this new Army compass will steer G.I.s in the right direction anywhere on the globe. G-E silicone rubber lining (right)prevents shock, temperature, moisture damage.





Testing equipment "ten miles up in the sky" without leaving the ground is now possible in this new altitude test chamber. G.E.'s Aircraft Gas Turbine Division uses it primarily for testing efficiency of reheat (afterburner) fuel pumps for jet engines. Chamber can reproduce severest conditions met in actual flight.



The gang's all here—and the parts too. It takes 8854 parts to make a J-47 jet engine. And it takes 87 men and women from the Air Force and G.E. to supervise and produce each engine. Increase in engine's life expectancy through engineering in past year will save the American taxpayer over 100 million dollars.

OUR ELECTRICAL SERVANTS

What's New in Helpers for the Home?

IN the brief period of 75 years since Edison made his first incandescent lamp, electricity has completely revolutionized life inside the American home. It lights, cooks and stores our food, washes and dries our dishes and clothes, heats and cools rooms, entertains us with radio and television. It has brightened the living room, streamlined the kitchen, and cleaned up the cellar.

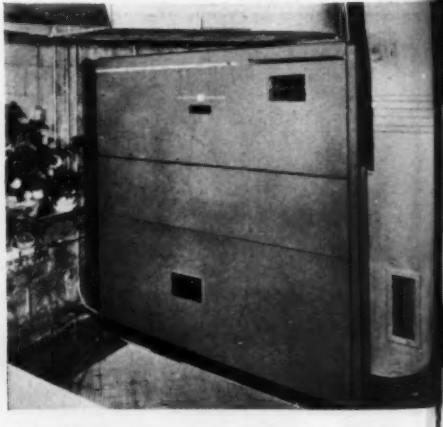
Today the average home uses 2200 kilowatt hours of power a year. Since a man's yearly work output is equivalent to 67 kilowatt hours, by dividing 67 into 2200 we see that the American housewife has at her beck and call 34 electric "servants." Experts predict that by 1970 these "servants" will number 102, or three times the present figure.

Shown on the following pages are some of the appliances that translate these statistics into realities. They are true helpers that make our lives easier and free us for more important work. They are everyday proof that ours is the Electrical Age.

Anyone who has burned his fingers "fishing" for toast will welcome this new G-E toaster. An extra-high toast lift saves fingers, while six-position heating browns toast for all tastes. Triple-Whip Mixer has 12 mixing speeds, an instant beater-release, a built-in light shining on bowl, most powerful motor ever used in a G-E mixer.

Clothing can be pressed in a professional manner with this new G-E Automatic Ironer which does the work of 11 hand irons working at once. Both ends are open to make ironing easier. "Toe-touch" control allows ironing at desired speed, leaves both hands free. G.E. also makes automatic washers and dryers for complete home laundries.

5000 people saw this Wonder Home in Hartsdale, N. Y., on the first day of public showing. Similar medium-priced houses, designed for G.E. by leading architects, are going up across the country. Plans are specially suited to G-E kitchen, laundry, appliances, heating, air conditioning, use G-E construction materials. Designs, supplied to builders, vary to suit conditions and climates of different areas.



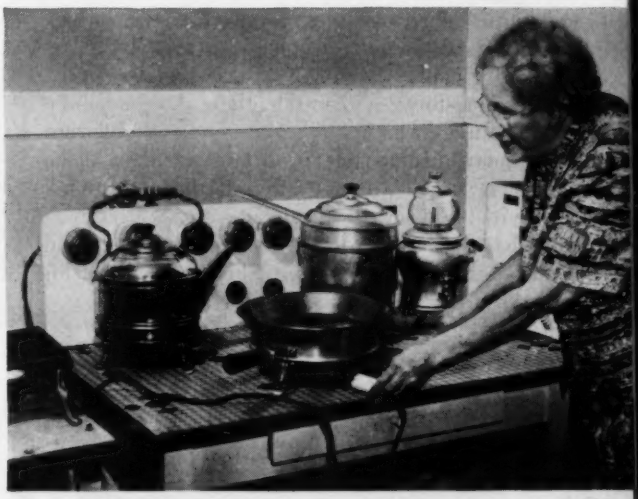
G-E Weathertron keeps houses comfortable the year round. In winter it heats with outdoor air, by compressing (which heats it) and circulating it—reverses the process in summer by drawing heat out of air inside the house.

The new, larger capacity dishwasher cleans dishes hygienically, can also serve as a plate warmer. A new control mechanism makes possible double washing for heavily soiled pots and pans.

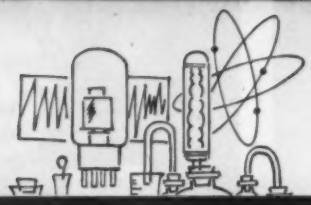
Taking the discomfort out of summer weather is the job of this G-E Floor Circulator fan. This latest model features a new steel base which encloses the motor, adding safety and sturdiness.

Listening for silence. A quality controller at G.E.'s Telechron Department checks this smartly styled new clock before shipment. Quiet running means that clock mechanism is well adjusted.

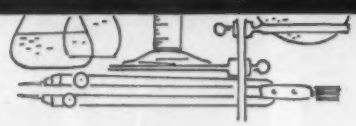
1953 refrigerators combine such features as full-width freezer, door shelves, automatic defrosting, adjustable shelves, and butter conditioner. Interesting note: over 3,500,000 G-E refrigerators have been in service ten years or longer.



G-E ranges are pretty dependable too. This 1906 model (top) still cooks with 47 years and tens of thousands of meals behind it. Range was essentially a table with plug-in board for appliances. Below. Old range's owner looks at a gift 1953 model. New models feature larger oven, extra high-speed surface cooking units.



ESEARCH—Pioneering for Tomorrow

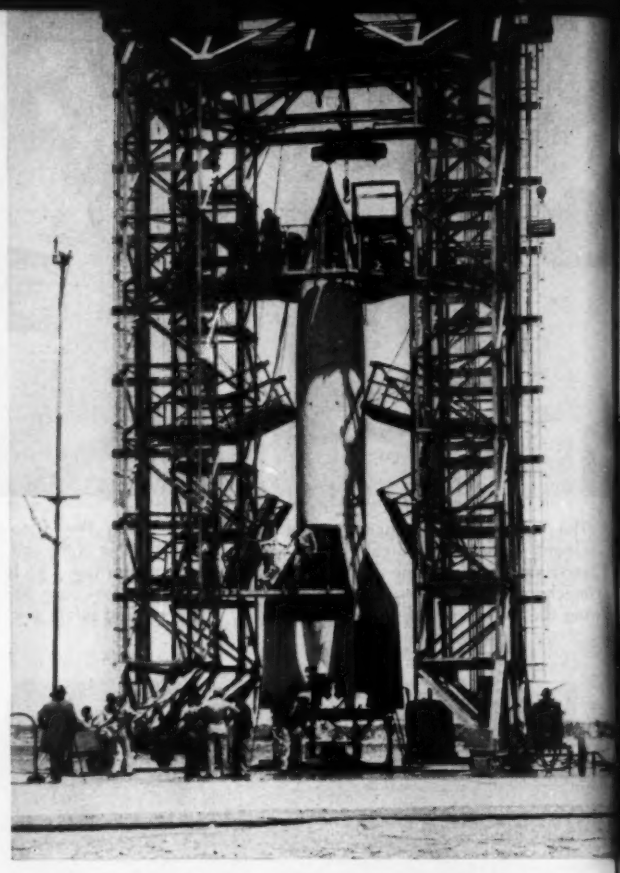


THE search for new knowledge is unending. Day after day, in laboratories throughout the world, scientists perform their experiments, waiting and hoping for results which will advance man one more step toward tomorrow.

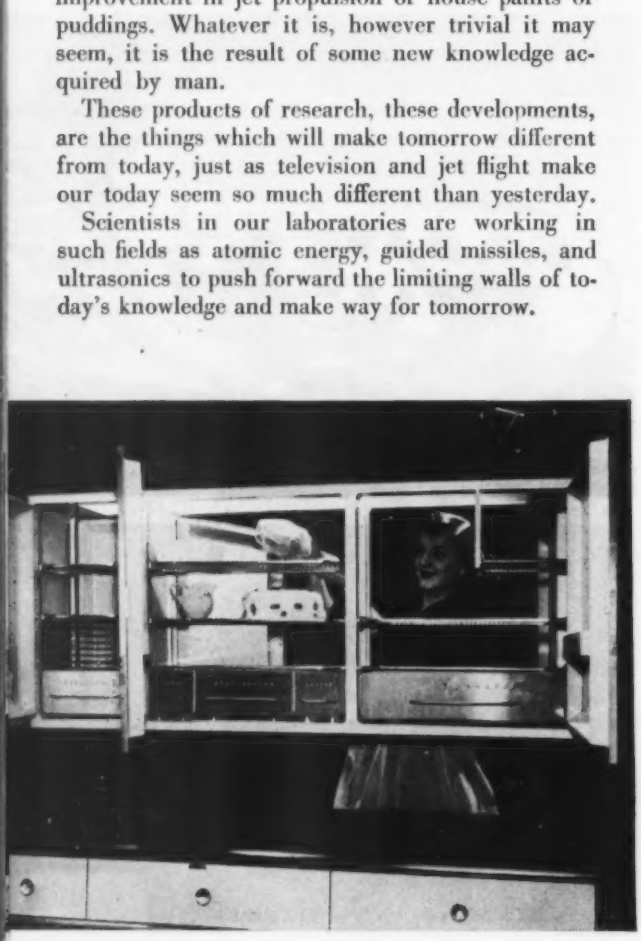
Perhaps this very day there is an announcement in your paper of something "new." Perhaps it is a cure for a dreaded disease; or maybe it is a radical improvement in jet propulsion or house paints or puddings. Whatever it is, however trivial it may seem, it is the result of some new knowledge acquired by man.

These products of research, these developments, are the things which will make tomorrow different from today, just as television and jet flight make our today seem so much different than yesterday.

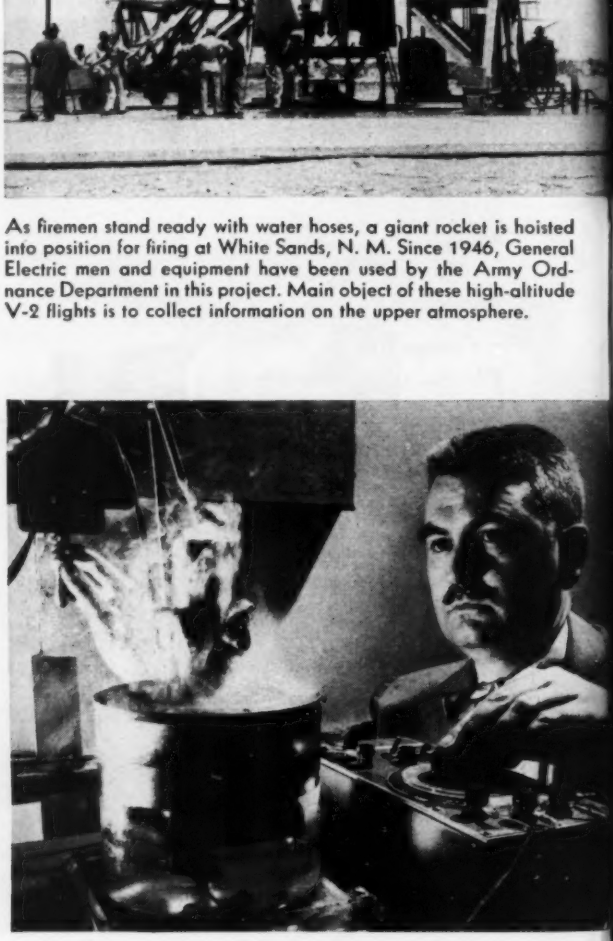
Scientists in our laboratories are working in such fields as atomic energy, guided missiles, and ultrasonics to push forward the limiting walls of today's knowledge and make way for tomorrow.



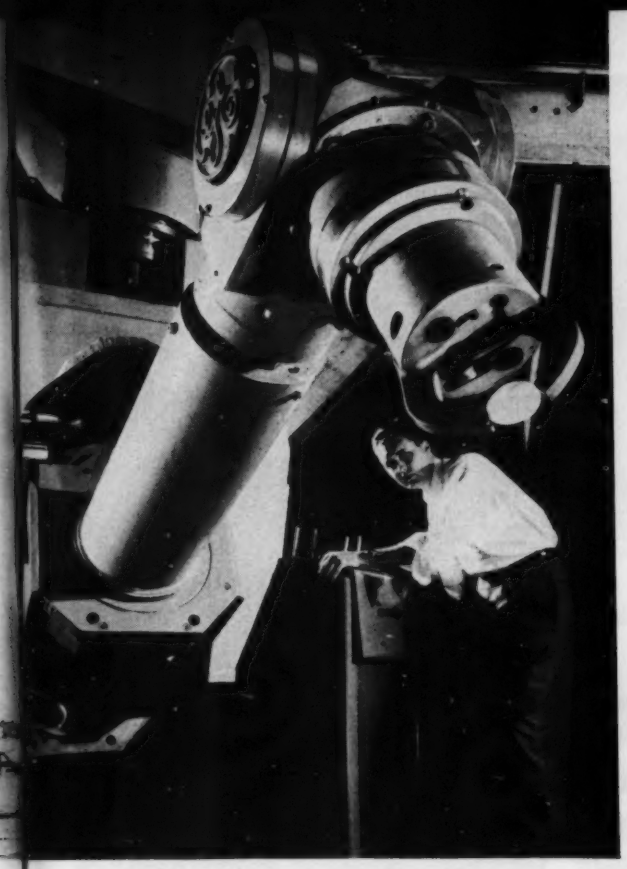
As firemen stand ready with water hoses, a giant rocket is hoisted into position for firing at White Sands, N. M. Since 1946, General Electric men and equipment have been used by the Army Ordnance Department in this project. Main object of these high-altitude V-2 flights is to collect information on the upper atmosphere.



Although it is still in the dream stages and shrouded in secrecy, research may in reality make this XR-10 the refrigerator of tomorrow. New insulation will allow walls only ½-inch thick, is calculated to be 10 times more efficient than that now in use. XR-10 can be opened from either side, has latchless, magnetic doors.



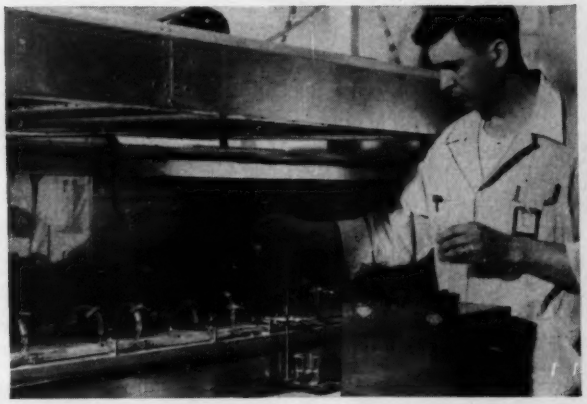
Ultrasonics—sounds which can't be heard by the human ear—are finding increased use in the cleaning of tiny mechanical parts. They literally shake dirt and grease loose from finished parts. G-E researchers continually search for new applications. Fog is effect of sound waves entering the liquid-filled chamber.



Progress in the field of atomic energy depends, to a great extent, upon man's ability to handle materials "hot" with radioactivity. Shown here is the world's largest mechanical hand designed for such work. It can lift, with equal ease, a 7000-lb load or a fragile egg, "lending a hand" where no man could possibly survive.

At Hanford Works in Washington, run for AEC by G.E., scientists raise sheep on foods containing varied amounts of radioactive iodine. Findings will aid in farming, science, civil defense.

Plants, such as these beans, are also raised at Hanford, under carefully controlled conditions, with diet of radioactive isotopes. Experiments are providing fundamental knowledge of plant growth.



Left Scientist at General Electric's Research Laboratory does research in the sterilization of foods with cathode rays. Meat, bread, milk, eggs, and other foodstuffs exposed to rays of this million-volt machine, have been kept fresh for weeks without any refrigeration.

Right Research has also shown that plastic containers, bombarded with high energy electrons, can stand up under steam sterilization. Unlike untreated polyethylene bottles, "cured" container can withstand extreme heat, is suitable for pharmaceutical use.

This young lady is getting a close-up of what the inside of the atomic sphere (front cover) will look like. Model shows the section of submarine hull that will house atomic power plant. The heat created by nuclear fission in the power plant will be transferred by liquid coolant to water boiler, thus creating steam to drive turbine. This plant, producing power from atomic energy as it does, presages the not-too-distant day when atomic power may be generally available.

For extra copies of *Highlights* and a list of school materials, write Public Relations, Dept. 2-119, General Electric Co., Schenectady, New York.

"The undiscovered truths of creation are, I believe, much more numerous and of greater import than the ones thus far discovered."

Dr. WILLIS R. WHITNEY,
First director of General Electric research

You can put your confidence in —

GENERAL ELECTRIC

PRG-29

Workers: Free Men or Slaves?

YOU don't have to start looking for a job just yet. But probably you're thinking about what you'd like to do when you finish school.

As you consider your future career, you ask yourself such questions as: "What kind of work would I like best? What am I best fitted for? Do I want to work outdoors or in an office? Do I want to travel or to settle in one town? Where will I find a job that will give me a good income and a chance to advance?"

Here are some other questions that wouldn't even occur to you. But they would be first in the minds of boys and girls in communist lands:

"What does the government plan for me? Will it assign me to a job? Will I be sent far away somewhere to work? Will I be able to stay in one place long enough to make a home, or will the government ship me off somewhere else in a few years?"

Compare those two sets of questions. You will see for yourself that the Communists are telling a "Big Lie" when they say: "Communism is the worker's paradise—but in America workers are slaves."

Let's look at the two systems:

1. GETTING A JOB

In our country you can "shop around" for any job you want. We have more than 4,000,000 private businesses. They compete to get the best workers. They try to keep their workers satisfied by giving them good pay and comfortable, healthful places to work. Then employees can do better work and are less likely to quit.

You are also free to start your own business.

Under communism a few people start their own businesses. But they can never grow any bigger than a corner peanut stand or a one-man repair shop—for they aren't allowed to hire workers. Only the government can do that. So nearly everybody works for the government.

The government sets the rules and rates of pay. When there are jobs to be filled, the government may send you an order: "You will report for work at such-and-such a factory." You aren't asked whether you want the job. And the government can transfer you to some other kind of work in another city. You go, whether you like it or not.

2. LEAVING A JOB

In our country, you can quit a job you don't like and look for another.

In a communist country, it's risky to quit your job. The penalty for that, in Communist Hungary, is two to 10 years in a slave labor camp. Having a job that you don't dare quit is a kind of slavery. The Communist managers think: "Why should I treat the workers well if they can't quit anyway?"

3. LABOR UNIONS

Many American workers join a union. Unions bargain with owners of the business for more pay and better working conditions. If the workers aren't satisfied, they may strike.

Communist countries have unions, too. But the government runs the unions. Since the government fixes pay rates, the union leaders can't demand higher pay. They never organize strikes. Their job is to get the workers to produce more. Workers who are discontented are likely to end up as slave laborers.

Last summer in Communist East Germany, workers protested against their working conditions. Russian tanks and East German police drove them back to their factories and many were killed.

4. UNATTRACTIVE JOBS

Suppose somebody offered you a job in a faraway lumber camp, or in a gold mine in the mountains. Life would be lonely and uncomfortable. Still, you might decide that the pay was so high that the job would be worth-while. Or you could refuse.

Communists have a different way to fill jobs that few people want. They use slave laborers. These are men and women condemned—not to prison—but to hard labor on government projects. A few of these are ordinary lawbreakers. But most of them are people whose only "crime" was to be suspected of opposing the Communist rulers.

Russia has eight to 12 million slave laborers. They endure terrible hardships. Many die quickly.

Under freedom, free men work where they please—and produce more than under any slave system. Freedom is the key to prosperity for all. Communism has thrown away this key. We intend to keep it and to use it to open new doors into the future.

New York Telephone Company

Girl at right is applying for a job with a telephone company. She is being interviewed. The interview will help decide two things: 1. Does the girl really want to work for the company? 2. Does the company want to hire her? Freedom to choose the work we want to do is one of our greatest privileges.

Young ABE LINCOLN

A PLAY BY BETTY SMITH

THE SCENE

The interior of a log cabin school house, one and one-fourth miles from the Lincoln home on Little Pigeon Creek, near Gentryville, Indiana. There is a double row of crudely made benches. The large bench in the front of the room is occupied, left to right, by Matthew Gentry, young Abe Lincoln, his sister, Sarah Lincoln, and Stephen Gentry. Betty Martin and Manda share the middle bench, and Polly Ellender and Lucy share a bench in the back. Big Dennis Hanks completely fills a bench by himself.

As the play opens, Andrew Crawford, the teacher, is writing on the blackboard. As he writes, the class studies its arithmetic aloud—then starts to quibble★ over the answers.

TEACHER: Order! Order! (*Pupils quiet down.*) Now that you have studied your ciphering, we will have the questions. If one foot contains twelve inches, I demand how many there are in one hundred and twenty-six feet. (*A stillness comes over the room.*) Dennis Hanks?

DENNIS (*he plays for time while he scratches his head in bewilderment*): One hundred and twenty-six feet of what?

TEACHER: It doesn't matter.

DENNIS: I reckon it don't.

TEACHER: Does anyone know the answer? (*Sarah raises her hand.*) I don't. But my brother Abe does. He does his ciphering on the back of our wooden shovel with a burnt stick. When it's all covered with figures, he scrapes it off with his knife and begins again.

TEACHER: Abe?

ABE: One thousand five hundred and twelve.

TEACHER: Correct. Dennis Hanks, I'm ashamed of you; a lad of sixteen being bested by your cousin Abe, who is but eleven.

DENNIS (*sheepishly*): Ain't got no place to study nohow.

TEACHER (*correcting him*): *I* have no place to study.

DENNIS: Mighty sorry you're in the same fix as me.

TEACHER: Silence! We will now proceed to your English. Can anyone give a word of five syllables accented on the fourth? Anybody? (*dead silence*) We will have to call on Abe again. Abe?

ABE: Predestination★. (*Pupils giggle and laugh.*)

TEACHER: Good. Now, what does it mean?

ABE: It means a word of five syllables with the accent on the fourth.

BETTY: Abe doesn't know what it mee-ans. (*Sing-songs.*) Abe doesn't know what it mee-ans.

TEACHER: Some day Abe will know what the word means. Some day he'll know what everything means.

ABE (*drawling*): That would be a powerful lot for a fellow to tote around in his head . . . everything.

(*Class laughs.*)

TEACHER: Order! (*Laughter subsides, but girls continue to giggle.*)

POLLY: We can't help it, Mr. Crawford. His . . . his . . . (*She is overcome by a fit of giggling.*)

★ Means word is defined on page 32.

TEACHER: Speak up!

POLLY (*exploding with laughter*): Abe's shirt tail's a-hangin' out!

MATTHEW (*a gentle boy of 12, stands up and raises his voice above the laughter*): I reckon if your mother died of the milksick just a year ago, and was buried in a lonely place like Abe's mother . . . and if you had no mammy to tuck in your shirt tail, then I reckon you wouldn't laugh so hard.

DENNIS: Sarah and Abe won't be without a mammy for long. Tom Lincoln's been a-courting Sally Johnson, and last week he went clear back to Kentucky to fetch her. She's a-coming here to Indianny today, married to my uncle, Tom Lincoln.

TEACHER: Dennis Hanks, you have transgressed★. I permit no idle gossip in the school room. You will write a fifty-word essay on Columbus, who was more engrossed★ in seeking new worlds than in spreading rumors. (*Turns to Abe and Sarah.*) I hope your new stepmother is kind and good.

SARAH: I don't want a new mammy.

ABE (*darkly*): This new one . . . she won't be my mother.

TEACHER: If your father wills it, you must call her mother.

ABE: Ain't nobody who loved my mother could ever love anyone else.

TEACHER (*gently*): Maybe her boys and girls feel the same way about your father.

SARAH: Oh, I hope they will be sisters to me. I get so alone-like.

ABE: They ain't nobody I'll ever all kin.

TOM LINCOLN (*from outside*): Whoa up, there!

TEACHER: A wagon . . . horses . . . I believe it's . . .

DENNIS (*excited*): It's my uncle, Tom Lincoln, and Mis' Johnson, his new wife, and they're a-bringing her younguns here to school.

(*The visitors come forward.*)

TOM: Howdy do, Mr. Crawford. This is my new wife from Kentucky.

TEACHER: I hope you like Indiana, Mrs. Lincoln.

MRS. LINCOLN (*looking around*): Well, it ain't so grand like Tommy made out when he was a-courting me. But I'll come to like it, I reckon.

TEACHER: Out here in the wilderness we live the same as Indians, excepting that we take an interest in politics and religion.

TOM: Abe and Sarah, say howdy to your new mammy.

SARAH (*timidly*): Howdy, Mammy.

TOM: Abe?

ABE: Howdy, Mis' Johnson.

TOM: Don't pay him no mind. He's peculiarsome.

MRS. LINCOLN: The boy favors Nancy Hanks some. Come here and meet your new brother and two sisters. This is John Johnson and this one is Matilda. And land o' Goshen, here's another Sarah! Well, we'll call her Sally.

TOM: We stopped by here on our way to the cabin because my wife wants to put her children to school.

TEACHER: I guess we can find room for them. John, you and Sally may share the bench in the back. Now, where can we put Miss Matilda?

DENNIS: There's lots of room on my bench. (*The class giggles.*)

MRS. LINCOLN (*to Abe*): I he'erd you was a reading boy, so I toted these books from Kentucky for you.

ABE (*examines them, his face aglow*): *A History of the United States*—and *Aesop's Fables*. These are the first books I ever owned. I'll pay you for them. I'll cut and tote in more wood than you can use, Mis' Johnson.

MRS. LINCOLN: Mis' Johnson? Well, never mind, boy. Some day you might look on me as your mammy, I hope.

TOM: And now, Abe, get ready to ride back with me. You're leaving school. I need you to help me.

MRS. LINCOLN: A great big man like you ain't needing help from a boy.

TOM: Well, anyway, he's got all the learning he needs for to live here.

MRS. LINCOLN: Maybe he ain't aimin' to live in these woods all his life.

TOM: It's a poor makeout of a school. Younguns just setting around and learning out loud.

MRS. LINCOLN: A blab school ain't much. But it's better'n none and if the boy wants learning, he's a-going to get it.

ABE: I do want it, Ma'am.

MRS. LINCOLN: Abe's going to school and that's settled.

ABE: Oh, Ma'am, I want to keep on.

TOM: I can't let Abe keep on in school. John Romaine wants to give him a job. He'll pay Abe thirty cents a day and I be needing that money.

MRS. LINCOLN: I got some money left from my farm. I will give you thirty cents a day each day he goes to school.

ABE (*beaming*): I'll pay you back some day, Mis' Johnson.

TOM: And now come along, boy. The ropes holding the furniture on the wagon need tightening.

ABE: Yes, Father. I'm coming. (*He turns around to speak to his stepmother.*) I'm mighty beholding to you for the books and for speaking up so's I could go on at school. I want to do something for you to show I thank'ee.

MRS. LINCOLN: Yes, Abe. I'd like for you to do something for me. (*She holds out a little tree.*) I'd like for you to plant this little tree out there. Where your mother is. It won't be so lonesomelike out there then.

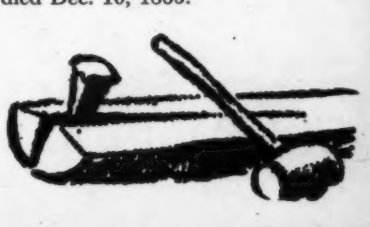
ABE: I thank you kindly, Ma'am. (*Mrs. Lincoln looks at him, sighs deeply and turns away. Abe looks at the little tree and then at her. He turns and comes to her. He speaks hesitantly.*) Mother . . .

MRS. LINCOLN: Yes, boy? What is it, son?

ABE (*shyly*): Nothing. Just . . . Mother. (*He turns suddenly and kisses her on the cheek.*)

• • •

EDITOR'S NOTE: Young Abe Lincoln's first spark of affection for his stepmother developed into a love strong and deep. She took a special liking to Abe. Her love for him continued to the day of his death. In later years, Dennis Hanks wrote: "But few children loved their parents as Abe loved his stepmother. She soon dressed him up in entire new clothes, and from that time on he appeared to lead a new life. He was encouraged by her to study, and any wish on his part was gratified when it could be done." In after years, when Mr. Lincoln spoke of his "saintly mother" and his "angel mother," he referred to this noble woman who was his stepmother. She lived to be 91, and died Dec. 10, 1869.



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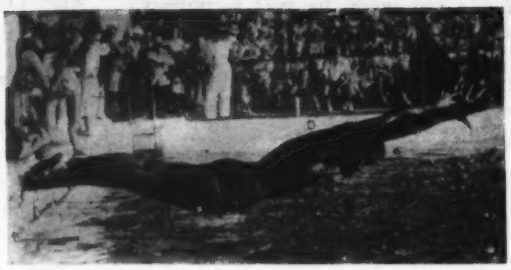
Sizzling Hot in the Water!



AT THE rate he's going, 15-year-old Gene Adler of Tilden H. S., Brooklyn, N. Y., will swim away with all the medals in the world by the time he's 20. He's just about the hottest young fin-flapper in captivity.

Some folks thought he was merely being given a free ride when he was chosen to compete in the Maccabiah Games in Palestine last fall. But Gene, then *just 14½*, proceeded to win the 200-meter butterfly event against some of the greatest swimmers in the world. That marked him as a phenomenal prospect for the 1956 Olympic Games.

Actually none of the *experts* was surprised at Gene's showing. For only a few months before, this baby-faced high school sophomore astounded the swim world by splashing off with the *national* four-mile title—becoming the youngest athlete ever to win a senior national swim event.

This wasn't the first splash made by Gene-ie with the light brown hair. Back when Gene was barely 13½, he competed in the national championships in Newark, N. J. He dressed alongside Ford Konno, perhaps the greatest swimmer in the world.

The great Konno blinked when he saw baby-faced Gene, who looked as if he'd just escaped from a crib. Konno turned to a buddy and murmured, "Gosh, what are the Nationals coming to? I didn't know they let children enter."

The "child" promptly finished seventh in the 300-yard individual medley and ninth in the 200-meter breast stroke. Not bad for a *child*, eh?

Gene, who stands 5' 7" and weighs 155 lbs., is probably the only swimmer ever to be coached by a glass blower. His coach, Henry Pferr, blows glass by day and teaches swimming by night at the Brooklyn Central Y.M.C.A.

Gene's dad brought him to Pferr when Gene was seven. Gene started lugging home medals and trophies soon afterward. "Mr. Pferr doesn't stress form," Gene says. "He believes in having you swim whichever way you're comfortable."

The remarkable thing about Gene is that he's equally outstanding in three different strokes—back, breast (butterfly, in particular) and free style. Just to show you he doesn't dabble or dawdle, Gene's best times are: 100-yard free style, 53.8; 220 free, 2:14; 440 free, 4:52; 100 back, 1:02; 100 butterfly, 1:02; 150 medley, 1:35.

At Tilden, Gene has set his sights on a fascinating goal. He won the New York City public high school 100-yard breast stroke crown last year and is favored to win the 220 free style this winter. His plan is to bid for the 100-yard back stroke and 100-yard free style titles in his remaining two years. Nobody's ever captured four different PSAL championships.

On a national scale, outside of his long-distance title, Gene is proudest of the second he took to Australia's Olympic ace, Dave Hawkins, in the national 200-meter breast stroke last summer.

Internationally speaking, Gene is still raving about his trip to Palestine. It was his first plane ride and he nearly celebrated it with a bang. A crash, that is. "When the plane left London Airport on its way to Greece," Gene related, "one of the motors conked out and we had to return to England. Though we knew this wasn't a rare occurrence, we felt very shaky until we landed. Of course, we took off again soon after."

Gene's teammates at the Maccabiah Games included, among others, Don Rosenthal, Southern California; Marty Smith, Yale; and Bernard Kahn, formerly of Michigan.

"We lived at the Hotel Windsor in Haifa," Gene said. "I'm afraid the food wasn't very good. Too spicy. And we all had dysentery. I lost 15 pounds."

The team returned to the States Nov. 1, meaning Gene missed more than a month of school. Since he's an 85 student, though, he didn't have much trouble making up his work.

Gene's movie favorites are Richard Widmark and Marilyn Monroe. No hobbies. Favorite subject: Biology.

His only regret: "I wanted to be a baseball pitcher." —ZANDER HOLLANDER

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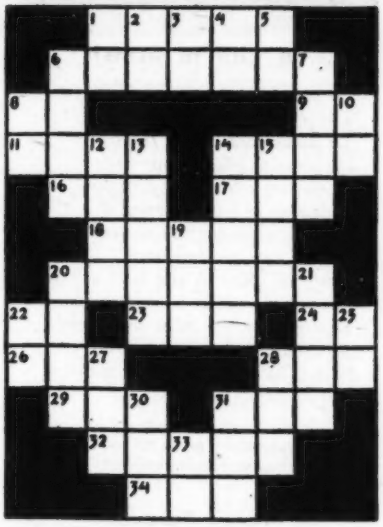
quiz-word PUZZLE



Each puzzle is based on a famous American saying. The instructions give you clues to the saying. When you finish the puzzle, write out the full saying on these lines:

Here are the clues: This signal from Commodore Dewey to the captain (6 A) of his flagship, *Olympia*, opened the Battle of Manila Bay, May 1, 1898. The entire Spanish fleet was destroyed in the following battle. "16 A 28 D 20 D 15 D 32 A 6 A."

ACROSS

1. Sketches a picture.
6. *Quotation word, captain of the *Olympia*.
8. Either. 9. Atop.
11. Hurt.
14. Twisted to one side (rhymes with *a cry*).
16. I am; — — — are; he is.
17. Definite article.
18. One of 48. 20. Eating.
22. Third note of the musical scale.
23. Distinguished Service Cross (*abbrev.*).
24. Belonging to.
26. Second person plural of "to be."
28. Marine (*abbrev.*).
29. Partake of food.
31. Cereal food, liked by horses (*singular*).
32. *Quotation word, meaning "prepared."
34. In addition.

DOWN

1. Doctor (*abbrev.*).
2. Rhode Island (*abbrev.*). 3. Not B. C.
4. Wave Length (*abbrev.*).
5. Southeast (*abbrev.*).
6. Black and white make it when mixed.
7. In time past (rhymes with *shore*).
8. Exclamation of surprise.
10. New York (*abbrev.*).
12. Popular flower, usually white or red. Also, a girl's name.
13. Muffled the tone of a musical instrument.
14. Garret.
15. *Quotation word, meaning "at whatever time."
19. Advertisements (*short form*).
20. *Quotation word, meaning "shoot."
21. Domestic animal which eats almost anything, and is at home on mountains.
22. Familiar term for "mother."
25. French (*abbrev.*).
27. You hear with it.
28. *Quotation word, meaning "be permitted."
30. Popular beverage. 31. Not even.
33. Indefinite article before a vowel.

Answers this week in Teacher Edition; next week in your edition.

Answers to Feb. 3 Quiz-word Puzzle

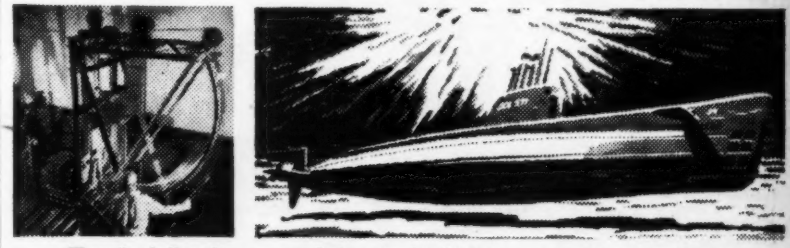
ACROSS: 1-hen; 4-ore; 5-sleep; 7-clue; 9-drab; 12-air; 13-any; 14-beef; 16-side; 17-sores; 19-truce; 20-Ty.; 22-get; 23-lo; 25-holy; 27-span; 29-ego; 30-are; 31-art; 33-ask; 34-do; 35-S.S.

DOWN: 1-hole; 2-ere; 3-need; 5-surest; 6-praise; 7-cab; 8-lie; 10-and; 11-bye; 15-Forgy; 16-sects; 18-rue; 20-the; 21-yoga; 23-lark; 24-one; 26-Lord; 28-pass; 32-to; 33-as.

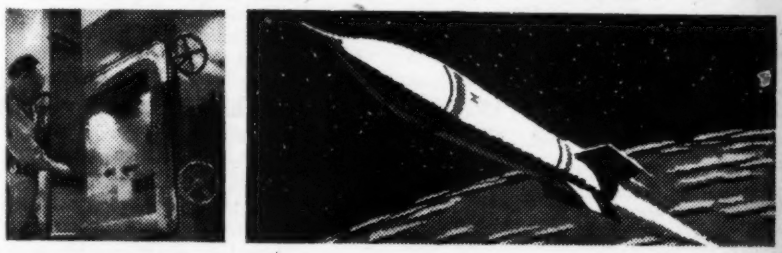
Tele-facts

Trial for COMBAT!

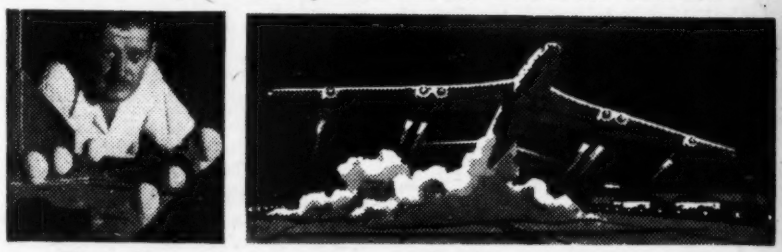
Bell Laboratories scientists are always working on new ways to make telephone service faster, better, cheaper. Because of their many electronic inventions, these scientists are also asked to help develop new electronic gear for our armed forces. Here are some of the ways they test intricate equipment for submarines, tanks and planes . . . without ever leaving the lab!



They "make" underwater explosions in this high impact machine. Equipment being tested is placed near the impact of a 400-pound hammer falling 5 feet.



This chamber tests equipment under pressures from sea level to 13 miles up in the stratosphere . . . in temperatures from 200° above to 100° below zero.



This jiggling machine shakes up equipment just the way airplane engine vibrations do. Ping-pong balls placed on this same machine seem to dance in mid-air.

Tests like these show how telephone scientists develop rugged, dependable equipment. It helps make our country strong. And the knowledge and experience gained help give you better, low-cost telephone service, too.

BELL TELEPHONE SYSTEM

VOLUME 34 NUMBER 2 FEBRUARY 10, 1954

Citizenship Quiz

RATE YOURSELF: 90-100—Good work! 80-89—Better than average; 70-79 — Fair; Below 70 —How about more work?

1. SCHOOL DAYS

Check the following true sentences. Put an X in front of the false ones. Score three points each. Total, 15.

__1. Physical education, a big hit, was a new subject in city schools of the 1890s.

__2. Pupils were never allowed to play any games at school in those days.

__3. None of the schools then had a principal.

__4. One of the most important subjects was *penmanship*, the practice of handwriting.

__5. Spelling was a subject not yet taught in U. S. schools.

My score_____

2. PANAMA CANAL FACTS

Match each phrase with correct ending. Score five points each. Total, 25.

__1. The Panama Canal links the Atlantic Ocean with the

__2. The Panama Canal was built in the

__3. Ships can pass through the Panama Canal in

__4. The length of the Panama Canal is about

__5. Control of the Canal Zone is held by

a. 50 miles.
b. early 1900s.
c. France.
d. eight hours or less.
e. 500 miles.
f. the U. S.
g. exactly two days.
h. Pacific Ocean.
i. early 1800s.
j. Caribbean Sea.

My score_____

3. FREE MEN OR SLAVES?

If a sentence describes how the Free World treats workers, put an F by it. Otherwise put an X by it. Score four points each. Total, 20.

__1. A worker is assigned to his job even if he doesn't like it.

__2. Any worker can quit his job and look for another one whenever he pleases.

__3. Workers have a right to join a union.

__4. A worker is given the chance to make progress in his work.

My score_____

4. THE WEEK'S NEWS

Underline the correct ending to each of the following statements. Score five points each. Total, 40.

1. Map shows locations of what will be the world's second longest suspension bridge. It is in
   a. Ohio. b. Michigan. c. California.

2. Man in photo is on a good-will tour of the U. S. His name is
   a. Winston Churchill.
   b. Celal Bayar.
   c. René Coty.

3. He is the president of
   a. France.
   b. Turkey.
   c. Britain.

4. U. S. historians recently announced that they plan to collect all the writings of
   a. Christopher Columbus.
   b. Benjamin Franklin.
   c. Babe Ruth.

5. The XP-21 Firebird, a car now being tested in the U. S. is powered by
   a. an atomic battery.
   b. a jet-like engine.
   c. a tiny Diesel motor.

6. U. S. Department of Agriculture teams study the snowfall to learn
   a. how long worms can live under the snow.
   b. how much water will be available during the year.
   c. how to keep frozen foods fresh a long while.

7. The world's longest overland coal conveyor belt is in
   a. northern Minnesota.
   b. southeastern Ohio.
   c. central Illinois.

8. A peace bell soon will be displayed at U. N. headquarters. The bell is a gift from
   a. Mexico.
   b. Japan.
   c. Egypt.

My score_____ Total score_____

Junior Writers

A Call to Arms!

To arms! Every man to his post!
The enemy lies in waiting,
To make victory his boast!
He lurks in piles of oily rags,
In papers carelessly dropped!
In dozens of cigarette stubs!
He has taken far too many lives,
But he can be defeated.
If we all pitch in and take a hand,
His attacks won't be repeated.
This enemy we must overcome,
To escape a fate most dire,
Is not an army carrying guns,
But ordinary fire.

Joe Curtis, Grade 7
John Neely Bryan School, Dallas, Tex.
Teacher, Frances Lambert

Yours Forever

The sky is yours forever,
For no one can take it away,
Its deep blue meadows of nowhere,
Its shadows of misty gray.

The stars that twinkle among it,
Their bright little faces aglow,
Send love from the heavens above us
To your glorious earth below.

Suzanne Hunter, Grade 8
School of Organic Education, Fairhope, Ala.
Teacher, Mrs. Alice L. Worth

STARRED ★ WORDS

Words starred ★ in this issue are defined here.

breakwater. Noun. A wall which breaks the force of waves to protect a harbor or beach.

bulwark (BULL-werk). Noun. A strong support or defense.

engrossed (ehn-GROHST). Verb. Absorbed; fully occupied. "He was so *engrossed* in his work that he did not see me enter."

geodetic (gee-oh-DEHT-ihk). Adjective. Concerned with the size and shape of the earth's surface.

quibble (KWIB'l). Verb. To make small objections; to evade the important points in an argument.

predestination (pree-dehs-tih-NAY-shun). Noun. The act of having one's future already decided by fate. To believe in it means believing that fate, rather than what you do, determines your future.

sanitation (san-ih-TAY-shun; first *a* as in *at*, second *a* as in *say*). Noun used as adjective. The science of fighting disease by removing filth.

transgress (trans-GRESS). To go beyond set limits. To break the law.

SOME FUN!

Send your favorite jokes to: Some Fun, Junior Scholastic, 33 West 42 St., New York 36, N. Y. If your joke is published, you will receive a Junior Scholastic Achievement (JSA) button. Remember to include your name, school, and address.

Couldn't Be Better

Father: "How much is three times three?"

Son: "Nine."

Father: "Pretty good, pretty good."

Son: "Pretty good? That's perfect."

William Denten, 881 Hertel Ave., Buffalo, N. Y.

Strange Signs

In an optometrist's window: "Eyes Checked While You Wait"

In a launderette: "Don't Kill Your Wife; Let Us Do the Dirty Work"

Nancy Roth, Horton Watkins H. S., Ladue, Mo.
Steve Harold, Lefor School, Regent, N. D.

Wrong Bite

Jim: "They're biting all right."

Lou: "That's funny. I haven't caught a single fish."

Jim: "Neither have I. I was talking about the mosquitoes."

Mike Ranta, Washburn School, Duluth, Minn.

Seafaring Man

Kay: "So your dad's a dentist on an ocean liner?"

Pete: "Yes. He takes care of the captain's bridge."

Jim Blythe, Nora School, Indianapolis, Ind.

Joke of the Week

***Mrs. Stone:* "Are you the game warden?"**

***Gruff Voice:* "Yes."**

***Mrs. Stone:* "Wonderful. I have the right person at last. Will you please suggest some games suitable for a children's party?"**

Richard R. Kenyon, Curtis Unit Sch., Glennie, Mich.

Coining a Word

Jack: "What is a good definition for a hotel?"

Bob: "A place where you pay dollars for quarters."

Charles Walton, Colonial Park School, West Haven, Conn.

Speech! Speech!

Betty: "Is your father a good after-dinner speaker?"

Pat: "Yes, especially when he says, 'Let's all go to the movies.' "

Naomi Muslin, Mark Twain Jr. H. S., Brooklyn, N. Y.

Great Loss

Priscilla: "I read last night about a large shoe factory that burned down."

Ann: "Were there any lives lost?"

Priscilla: "Over a thousand soles."

Barbara Muolli, Uxbridge (Mass.) Jr. H. S.

Down to Earth

Joe: "The law of gravity is what keeps us on the earth."

Nell: "Well, how did we stay on before the law was passed?"

Frances Russell, Mackville School, Springfield, Ky.

If you have a hammer

You'll do a more professional job with Plastic Wood. Fills nail holes, covers hammer marks. Handles like putty, hardens into real wood.

You need PLASTIC WOOD

Stronger — resists weather—sands to a smooth finish.

NOW IS YOUR LAST CHANCE TO ENTER THE PLANTERS PEANUTS PRIZE CONTEST!

FIND 10 MISTAKES IN THIS PICTURE AND FILL IN THE LAST LINE OF THE LIMERICK BELOW!

There's a lively young girl named Marie
—What a popular student is she!
Full of pep, vim, and zest,
She can pass any test
Example:
'Cause she eats Planters Peanuts, you see!

READ THESE PLANTERS PEANUTS CONTEST RULES CAREFULLY

1. Anyone under the age of twenty may compete.

2. Study the scene above and list on a sheet of paper ten mistakes you find in it. State each carefully and clearly. With your list submit a last line to the above limerick.

3. Each contestant may submit more than one entry. Send empty Planters bag, wrapper or label bearing a picture of Mr. Peanut with each entry, or send a hand-drawn facsimile showing Mr. Peanut. On top of page write your name, age, home address, city, and state. Fasten the bag, wrapper or picture to your entry.

4. Mail entries to Planters Contest Editor, 33 West 42 Street, New York 36, N. Y., to arrive by midnight, Feb. 22, 1954. No entries accepted after that date.

5. Prizes will be awarded to those submitting correct list of 10 mistakes, and whose limericks are considered best by the judges.

The judges' decision is final. Winners will be announced in the issue of this magazine of April 28, 1954, as well as by direct mail. No other acknowledgment of entries will be made. In the event of a tie for any prize offered, a prize identical with that tied for will be awarded each tying contestant.

231 PRIZES!

1st prize	$35.00
2nd prize	$25.00
3rd prize	$15.00
4th prize (3) . .	$10.00 each
5th prize (5) . .	$ 5.00 each
6th prize (20) .	$ 1.00 each
200 Honorable Mentions— two 8-oz. vacuum-packed tins of Planters Peanuts.	

What Are 'Approvals'?

Scholastic Magazines accept stamp advertisements only from reliable and trustworthy stamp dealers. Our readers are advised to read an advertisement carefully before sending money for stamps. If the advertisement mentions the word "approvals," the stamp dealer will send you in addition to any free stamps, or stamps you pay for in advance, a selection of other stamps known as "approvals." Each of these "approval" stamps has a price clearly marked. If you keep any of the "approval" stamps you must pay for them and return the ones you do not wish to buy. When writing to stamp advertisers be sure to write your name and address on your letter and on the upper left-hand corner of the envelope. If you do not intend to buy any of the "approval" stamps return them promptly, being careful to write your name and address in the upper left-hand corner of the envelope in which you return the stamps. Scholastic Magazines will do all in their power to protect their readers from unfair practices. Any reader who considers that he has been deceived as a result of his response to an advertisement in Scholastic Magazines is urged to appeal to the Executive Editor, Scholastic Magazines, 33 W. 42nd St., New York 36, N. Y.

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ED. S. SAPHIRE
Box 44, Times Square Station, New York 36, N. Y.

WORLD'S LARGEST STAMP!
A real curiosity! A stamp so large (7½x14 inches) it will occupy a full page in your album. Retails for 50c. Given FREE to approval service applicants sending 5c postage. STAMPS: All diff., 500, $1; 1,000, $2; 2,000, $4; 5,000, $14.
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STAMPS

1954 U. S. Prospects

How many new stamps will the U. S. issue in 1954? Postal officials are now drawing up this year's stamp program. Some stamp writers predict that the Department will issue a dozen new stamps in 1954. Last year, 13 were issued.

Many suggestions for new stamps have been sent to Congress. There are requests for stamps commemorating: the 100th year since the setting up of the Territory of Kansas; the 100th year since the setting up of the Territory of Nebraska; the 300th year since the first Jewish settlers arrived in America; the 125th year since the first trial run of the locomotive "Stourbridge Lion" at Honesdale, Pa.

Requests also have been made for stamps honoring the memory of: Amelia Earhart; Robert A. Taft, former Senator from Ohio; Fred M. Vinson, former Chief Justice of the United States; Maurice J. Tobin, former Secretary of Labor; Kit Carson, and others.

Many stamp collectors have asked that the words "In God We Trust" be printed on all future U. S. stamps.

Watch this column for news of new U. S. stamps and for first-day cover details. A first-day cover is an envelope which carries a newly-issued postage stamp. The envelope and stamp are postmarked on the first day of the stamp's official release.

STAMPING GROUNDS: The United Nations has issued an album for U. N. stamps and postal stationery. The album is a three-ring binder with 32 pages. It has space for mounting single stamps and blocks of four of each stamp issued by the U. N. through 1953. The album also gives information about the U. N. Cost of album: $1.50. You can order a copy from: The Washington Press, 43 William Street, Newark 2, N. J. —TONY SIMON

Postal Philatelic Agency

On February 2, Denmark issued this commemorative showing early telegraphic equipment. The stamp, in red, pays tribute to the 100th year since the start of telegraphic service in Denmark.

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Most all in natural colors. Includes assortment Flowers; Angola Antelope and Leopard; Australia Kangaroo; Mozambique Butterfly and Giraffe; Italy She-Wolf; Persia (large Lion); Sarawak Butterfly, So. Moluccas Fish; Triangles, etc. Everything only 10¢ to approval Applicant.
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WORDS TO THE WISE

HERE'S HOW

Roger Geyer and Larry Anderson are members of Miss Ruth Potter's fifth grade at Sunnyside School, Garden Grove, Calif. They have sent a "valentine" to *Junior Scholastic*. Here it is:

In this puzzle, 13 different words can be made from the letters of *Valentine's Day*. Fill in the blanks after each first letter, using letters from *Valentine's Day*. Each word is defined in parentheses.

V – – – (a valley)

A – – (one kind is made with lemon)

L – – – (some people live off the fat of the ____)

E – – – (opposite of west)

N – – – (opposite of untidy)

T – – – (opposite of big)

I – – – (not busy)

N – – – (number after eight)

E – – (opposite of begin)

S – – – (opposite of leave)

D – – (opposite of night)

A – – (devoured)

Y – – – – (it makes bread rise)

Valentine Bouquet

Are you thinking of sending flowers to someone for Valentine's Day? In your great-grandparents' day, flowers were used as a way of sending messages. Different flowers had different meanings. A girl would look up the kind of flower she received in a little book called *The Language of Flowers*, to see what "message" she was receiving.

Some flowers had flattering meanings. Others were insulting. Here are some examples, taken from *The Language of Flowers:*

1. *Yellow tulip:* Hopeless love.
2. *Pink larkspur:* Fickleness.
3. *Narcissus:* Conceit.
4. *Red carnation:* "Alas! for my poor heart."
5. *Rosebud:* Confession of love.
6. *Scarlet geranium:* Stupidity.
7. *White lilac:* Youthful innocence.
8. *Yellow rose:* Jealousy.
9. *Daffodil:* Regard.
10. *Crocus:* "Abuse me not."
11. *Peony:* Shame.
12. *Purple violet:* Faithfulness.
13. *Honeysuckle:* Generous and devoted affection.
14. *Orange blossoms:* "Your purity equals your loveliness."
15. *Hydrangea:* Heartlessness.

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6. Ricochet
7. Heart Of My Heart
8. Granada
9. Ebb Tide
10. You Alone
11. Secret Love
12. The Jones Boy
13. Woman
14. Istanbul
15. Eh, Cumpari
16. Oh! Marie
17. You, You, You
18. Madcap

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4. I Really Don't Want to Know
5. Changing Partners
6. Wake Up Irene
7. Satisfaction Guaranteed
8. I love You
9. Tain't Nice
10. I'll Never Get Over You
11. Release Me
12. Caribbean
13. You All Come
14. Tennessee Wig-Walk
15. Yach-A-Toom
16. Just Married
17. Let's Kiss & Try Again
18. North Wind

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4. Mansion Over The Hilltop
5. Peace In The Valley
6. From The Manger to The Cross
7. Someone To Care
8. I Can't Help What Others Say
9. I'm Using My Bible For a Road Map
10. If We Ever Meet Again
11. I Know Who Holds Tomorrow
12. Glory Land March
13. No Tears In Heaven
14. Man of Galilee
15. Too Much Sinning
16. Suppertime
17. Crying In The Chapel
18. The Great Milky Way

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4. Too Much Lovin'
5. Please Love Me
6. Shake A Hand
7. Get It
8. Don't Deceive Me
9. Mercy? Mr. Percy
10. Just Walkin' in the Rain
11. Feeling Good
12. Dragnet Blues
13. Why? Oh Why?
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11. Little Brown Jug
12. Turkey in the Straw

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2. Bye, Bye, Blues
3. You Belong To Me
4. Anywhere I Wander
5. Takes Two To Tango
6. My Baby's Coming Home
7. Lady of Spain
8. Keep It A Secret
9. Hold Me, Thrill Me, Kiss Me
10. Why Don't You Believe Me
11. Till I Waltz Again With You
12. Don't Let the Stars Get in Your Eyes
13. Trying
14. Even Now
15. Glow Worm
16. Have You Heard
17. Side By Side
18. Oh Happy Day

watch your language!

don't say
George . . . .

when you mean
gorge . . . . . .

Many famous men have been named George—which is all the more reason not to confuse the name with a steep, narrow valley (gorge).

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General Electric Highlights of 1953

A Lesson Plan for General Classroom Groups

How to Use This Pictorial Section

1. The pictures, with brief accompanying texts, are divided into five chapters designed to explain the highlights of General Electric industrial activity in the last year. Discussion questions, based on each of the chapters, are suggested below.

2. The material lends itself to open-book work. The questions will evoke the most discussion if pupils are permitted to open the insert to the appropriate chapter.

3. If further activity is practical, the suggestions under "Things to Do" may be drawn upon by both junior and senior high school students.

4. If desk dictionaries are available, they will be of help to students who should acquire familiarity with a technical vocabulary that is becoming part of our everyday speech.

DISCUSSION QUESTIONS

Muscle Power (pp. 3-5)

1. What are some of the industries you can work in today that were unknown when Thomas Edison was your age?

2. Study the picture of the modern steam plant in India, on page 4. How would the picture differ if the steam plant were being constructed in our country? Account for the differences.

3. What effect has the development of the electric motor had on the industrial productivity of the United States?

Toward Better Living (pp. 6-8)

1. How have electrical developments changed our ways of having a good time? How have our chances for a longer life been increased?

2. Study the TV pictures on page 7. How is General Electric trying to bring more and better TV to the American people?

3. How do the conditions in your school compare with those pictured on page 8?

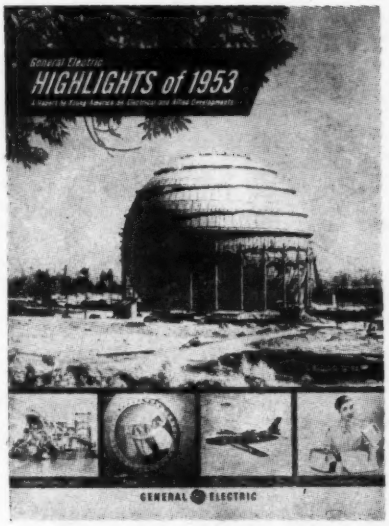
For America's Defense (pp. 9-11)

1. Would you be willing to work atop New Hampshire's Mount Washington (see page 10)? What factors would enter into your decision?

2. How has the General Electric company aided in defending the United States against possible enemy attack?

Our Electrical Servants (pp. 12-13)

1. How has life at home been made easier since your grandmother was a girl?



2. Latest figures tell us that there are eight electric motors at work in the average American home. Make a list of the motors in your home and their uses.

Research (pp. 14-15)

1. Describe the training in research methods you are getting in school. How might this training be improved?

2. How are General Electric researchers helping to bring about a better tomorrow?

SUMMARY AND APPLICATION

1. If the generation of electric power were halted in the United States for one month, how would your life be affected?

2. At General Electric they say, "Progress is our most important product." How has this picture section helped to prove that statement?

Things to Do

1. Find a book or pamphlet in the school or local library which will help you to understand the careers open to you in the electrical industry. How can a high school and higher education help you to prepare for such careers?

2. Make a survey of your neighborhood. Report on the ways in which electric power affects the life of the community. Be specific.

3. Obtain your family's electric bills for the past year. Show the monthly costs in a broken line or bar graph. Be sure to make the intervals large enough so that changes in costs are shown clearly.

4. List the electrical devices used in your own home.

5. Write a verse or two in which you capture the idea that the uses of electric power have grown greatly since the invention of the electric lamp.

6. Draw a cartoon which might have been used to illustrate this booklet.

7. You are preparing a 15-minute TV program called, "Young America Looks at an Electrified World." Which of the pictures or developments in the insert would you include in the program? Justify each.

Electrical Quiz

Place the number preceding the correct answer in the space to the left.

__a. A *masonry drill* is an important tool in each of the following industries, *except*
1. stone-cutting
2. machine-tool
3. construction
4. clothing manufacture

__b. The major purpose of a *generator* is to
1. build dams
2. produce rain during dry spells
3. produce electric power
4. lengthen the life span of people

__c. *Circuit breakers*
1. are large waves which destroy electric plants built too close to the ocean shore
2. help prevent breakdowns in electric power systems
3. interrupt the flow of electric power
4. are trouble shooters who repair electric lines after storms

__d. A *turbine* is
1. an engine in which the driving parts rotate
2. a head covering which protects workers from the sun
3. a detailed plan for the construction of hydroelectric plants
4. a machine for lifting great weights

__e. The chief purpose of an *industrial X-ray machine* is to
1. stop the growth of cancer cells
2. prevent workers from being injured by radiation
3. control the growth of germs which contribute to absences
4. look inside metal to uncover any defects

__f. *Radar screens* are used chiefly to
1. show three-dimensional motion pictures
2. provide protection against metal-piercing shells
3. predict weather
4. spot moving aircraft

Answers: a-4; b-3; c-2; d-1; e-4; f-4.

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